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# Assessment of Organic Emission in the Flexible Packaging Industry

WAPORA, Inc.
Chevy Chase, MD

Prepared for

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A survey of solvent use and emissions, control technology, and operating characteristics of individual production machines was conducted in cooperation with the Flexible Packaging Association. Responses were obtained from 154 plants containing 799 prime machines.

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January 1981

# ASSESSMENT OF ORGANIC EMISSIONS IN THE FLEXIBLE PACKAGING INDUSTRY

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# FOREWORD

When energy and material resources are extracted, processed, converted, and used, the related pollutional impacts on our environment and even on our health often require that new and increasingly more efficient pollution control methods be used. The Industrial Environmental Research Laboratory - Cincinnati (IERL-Ci) assists in developing and demonstrating new and improved methodologies that will meet these needs both efficiently and economically.

This report presents the results of a study of the Flexible Packaging Industry to provide current data on solvent usage by the various types of operations and to estimate the costs of control technology for volatile organic compounds emitted from these operations.

This information will be of value both to the EPA's regulatory program (Office of Air Quality Planning and Standards) and to the industry itself.

For further information concerning this subject, the Industrial Pollution Control Division should be contacted.

David G. Stephan
Director
Industrial Environmental Research Laboratory
Cincinnati

# ABSTRACT

The purpose of this project was to study emissions of volatile organic compounds (VOC) by the flexible packaging industry and to determine the effectiveness and cost of available means for controlling these emissions. A survey dealing with solvent use and emissions, control equipment, and operating characteristics of individual production machines was conducted in cooperation with the Flexible Packaging Association. Responses were obtained representing 154 flexible packaging plants containing 799 prime machines.

Plants reported solvent usage ranging from less than 1,000 lb/yr to almost 9 million lb/yr. Eighty-one plants use less then 500,000 lb/yr; these plants account for over 50% of the plants responding to the survey, but used less than 5% of the total amount of solvents reported. Flexographic presses, accounting for 46% of the machines, use primarily alcohols and ketones; gravure presses (19% of the machines) use a variety of solvents, coaters (7%) use primarily hydrocarbons; laminators (11%) use ketones and hydrocarbons; and priming stations (6%) chiefly use alcohols. The remaining 10% of the machines perform combination of operations.

Estimates were made of the cost of control of the VOC emissions of these machines by incineration, incineration with 70% heat recovery, and steam-regenerated activated carbon. Solvents which are immiscible with water can be recovered from regeneration steam condensate by decanting, but when the solvents are water miscible, an extra cost will be incurred for disposal of the contaminated condensate; cost estimates were made with and without a condensate disposal cost. Without including a cost for condensate disposal, activated carbon was the least expensive VOC control method for 84% of the machines, incineration with heat recovery was least expensive for 15%, and incineration without heat recovery was least expensive for only 1% of the machines investigated. When a charge for condensate disposal was included, activated carbon was still least expensive for 70% of the machines. The cost of the least expensive control technique was less than $0.50 per pound of VOC removed for 19% of the machines tested, ranged from $0.50 to $3.00 for 62%, and was over $3.00 per pound of VOC for 19%. The primary factors controlling the type of control equipment which was least expensive were the cost of supplemental fuel required for incineration and the cost of regeneration of the activated carbon unit; when the content of VOC in the exhaust was below the 500-1,000 ppm range activated carbon was normally cheaper, while above this range there was sufficient heating value in the exhaust to reduce the supplemental fuel requirements for incineration and the frequency of regeneration of activated carbon increased to the point where incineration with heat recovery became the least expensive process.

Other types of VOC control equipment include catalytic incineration, incineration with higher heat recovery, hot-gas or vacuum regeneration of activated carbon, and a process using a nitrogen atmosphere in the press drying area, with VOC recovery by condensation. Insufficient data was obtained to allow cost estimation of these processes.

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# SECTION 1

# INTRODUCTION AND SUMMARY

## BACKGROUND

Inks, coatings, and adhesives used in the manufacturing of flexible packaging materials must be dried before the product can be stored or used further. This step is accomplished in the drying portion of the process machine, where heated air is blown over the web of material as it passes through the machine. It is the discharge of solvents removed by the heated air during the drying process that gives rise to emissions of volatile organic compounds (VOC).

The purpose of this project was to study emissions of volatile organic compounds (VOC) by the flexible packaging industry and to determine the effectiveness and cost of available means for controlling these emissions. The Flexible Packaging Association (FPA) cooperated in the program by conducting a survey to provide current data about the flexible packaging industry, particularly with regard to the solvents used and experience with control systems.

### Data Collection

A questionnaire was designed to provide data on solvent use and emissions from the flexible packaging industry. Information requested included sections on solvent use, emission control equipment (incineration or carbon adsorption) currently in use, if any, and operating characteristics of individual production machines.

Of the 1,136 questionnaires mailed out, 154, or 13.6%, resulted in responses that have been incorporated into this analysis. Approximately 60% of the FPA membership responded to the survey. This survey covers responses from 154 flexible packaging plants, containing 799 prime machines.

## SURVEY RESULTS

The largest annual solvent use reported in this survey was for a two-plant complex using almost 9 million lb/yr; the smallest plant use was less than 1,000 lb/yr. Eighty-one plants use less than 500,000 lb of solvent per year. Although these 81 locations account for more than 50% of the total number of plants, they use less than 5% of the total solvents reported in the survey.

Inks account for approximately 50% of the total solvents used by the respondents. More than 17% was used in coatings, a similar amount in adhesives, and about 14% was used in varnishes, cleaners, and other uses combined.

Presses are the most prevalent type of equipment and account for 65% of the total number of machines (799), with the flexographic type being more common (46%) than the rotogravure presses (19%). Of the other machines, 11% are laminators, 7% are coaters, 6% are priming stations, and the remaining 10% are machines equipped to perform combinations of operations. On the average the machines are scheduled to operate some 4,900 hr/yr and are idle about 30% of this time.

Some generalizations about the composition of the solvents used on these machines can be drawn: Flexographic presses use mainly alcohols and esters, gravure presses use a variety of solvents, coaters use primarily hydrocarbons, laminators use ketones and hydrocarbons, and priming stations chiefly use alcohols.

In general, most machines in this survey tend to have exhaust volumes of less than 15,000 standard cubic feet per minute (SCFM) and maintain process temperatures well below 400°F. Of the four age groups, by far the largest number of machines for each equipment type are in the category of 15 years or older.

Some similarities in exhaust data were identified among machine types. For flexographic presses, the reported lb/hr of exhaust emissions range from 0 to 154, with a median of 19; the median lb/yr is about 60,000, with single machine values as high as 620,000 lb/yr. Concentration values range from 1 to 2,900 parts per million (ppm), with a median of 350 ppm. The exhaust data for laminators tend to be somewhat similar to that of flexographic presses. The relevant medians are 18 lb/hr, 50,000 lb/yr, and 249 ppm.

Gravure presses have lower solvent concentrations when compared to coaters; the medians are 140 ppm and 400 ppm, respectively. Exhaust emissions from these two machine types tend to be the highest, with median lb/hr ranging from 36 to 41, and median lb/yr from 127,000 to 151,000. Several factors could contribute to this: Commodity nature of these operations, greater number of hours of operation, and larger volumes of exhaust gas. Priming stations tend to have lower concentrations than any other machine type. The combination press-and-coater generally follows the trend of flexographic presses, and the coater-laminator combination more closely reflects the laminator operation.

## COST ESTIMATES

To obtain an estimate of the cost of controlling VOC, the costs of incinerators and activated carbon adsorption units were obtained from manufacturers and from their literature. Cost quotations were requested from the manufacturers for units of several sizes on the basis of an installed unit on the plant site, ready to run; they did not include site preparation and site piping and duct work. In addition, several literature references were used to assist in preparation of cost estimates. There was considerable variation in the cost figures obtained, especially in the costs of incinerators, where the spread in values was approximately ±50%.

Cost figures based on annual cost and $/lb of VOC removed were calculated for 342 machines that had responded to the survey with sufficient data. Costs were calculated for thermal incineration without heat recovery, thermal incineration with 70% heat recovery, activated carbon with steam regeneration, without credit for recovered solvent, and activated carbon, including a condensate disposal charge. From the cost data, the following conclusions can be drawn:

1. For 84% of the machines, activated carbon was the least expensive VOC control method; incineration with heat recovery was less costly on 15% of the machines, and incineration without heat recovery was least expensive on only 1% of the machines. When a charge for condensate disposal was included, activated carbon adsorption was still the least expensive option for 70% of the machines.

2. Average annual costs per machine for control by the four techniques were as follows:

| | |
|---|---|
| Incineration ---------------------------- | $561,000/year |
| Incineration with 70% heat recovery ------- | 209,000 |
| Activated carbon with steam regeneration -- | 118,000 |
| Activated carbon with charge for condensate disposal ---------------------- | 160,000 |

3. Average costs per pound of solvent vapor removed ranged upward from less than $0.10/lb VOC. The distribution of these costs (in percent) for various control technologies was as follows:

| Cost Range ($/lb VOC) | Carbon Adsorption | | Incineration | | Least Expensive Technique (2) |
|---|---|---|---|---|---|
| | (1) | (2) | No Heat Recovery | 70% Heat Recovery | |
| Under $0.50 | 31 | 8 | 1 | 17 | 19 |
| $0.50-$1.00 | 22 | 34 | 12 | 20 | 27 |
| $1.00-$3.00 | 29 | 37 | 30 | 32 | 35 |
| Over $3.00 | 18 | 21 | 57 | 31 | 19 |

---

(1) Charge for disposal of steam regeneration condensate not included.

(2) Includes charge for activated carbon steam regeneration condensate disposal.

4. For activated carbon units, the costs associated with capital charges, maintenance, and labor are the major part of the annual costs, ranging from 60% for some of the larger, more heavily used machines, to over 90% for smaller units that are used only on a part-time basis. When condensate disposal is necessary, these costs can vary from less than 10% of the total annual cost to over 80% if this control technique were to be applied to a gas stream of high VOC content.

5. For incinerators, except when the VOC content of the exhaust is high and for very small or rarely used units, fuel costs are the major portion of the annual expenses; and because of this, heat recovery is almost always economical. The 70% heat recovery level considered here was found to be economical in most cases in spite of the higher capital costs. Units with up to 90% heat recovery are available at increased capital costs.

6. In general, the annual costs for such items as capital, maintenance, labor, fuel, and water increase almost in proportion to the amount of contaminated air sent through the control device (SCFM). As the amount of VOC in the incoming air increases, the cost of incineration decreases, since the heat-value of the VOC replaces part of the fuel required to reach incineration temperature, and the cost of activated carbon adsorption increases, since regeneration is more frequent and there may be cost of condensate disposal if the solvent is water soluble. This study indicates that when condensate disposal is required, the break-even point is in the range of 500 to 700 ppm VOC; below this point, activated carbon usually is less expensive; and above, incineration with heat recovery will be less costly, with, of course, some overlap. When the solvents are not water soluble and condensate disposal is thus not required, this break-even range increases to 900 to 1,000 ppm.

The importance of VOC concentration in reducing the fuel costs of incineration can be seen by considering the case where toluene is the solvent. With 70% heat recovery, fuel requirements decrease with increasing VOC content until at 1,860 ppm, no fuel is required. Without heat recovery, the point of zero fuel requirement is reached at about 6,000 ppm, and it would be at about 600 ppm with 90% heat recovery.

## SECTION 2

## NATURE OF THE INDUSTRY

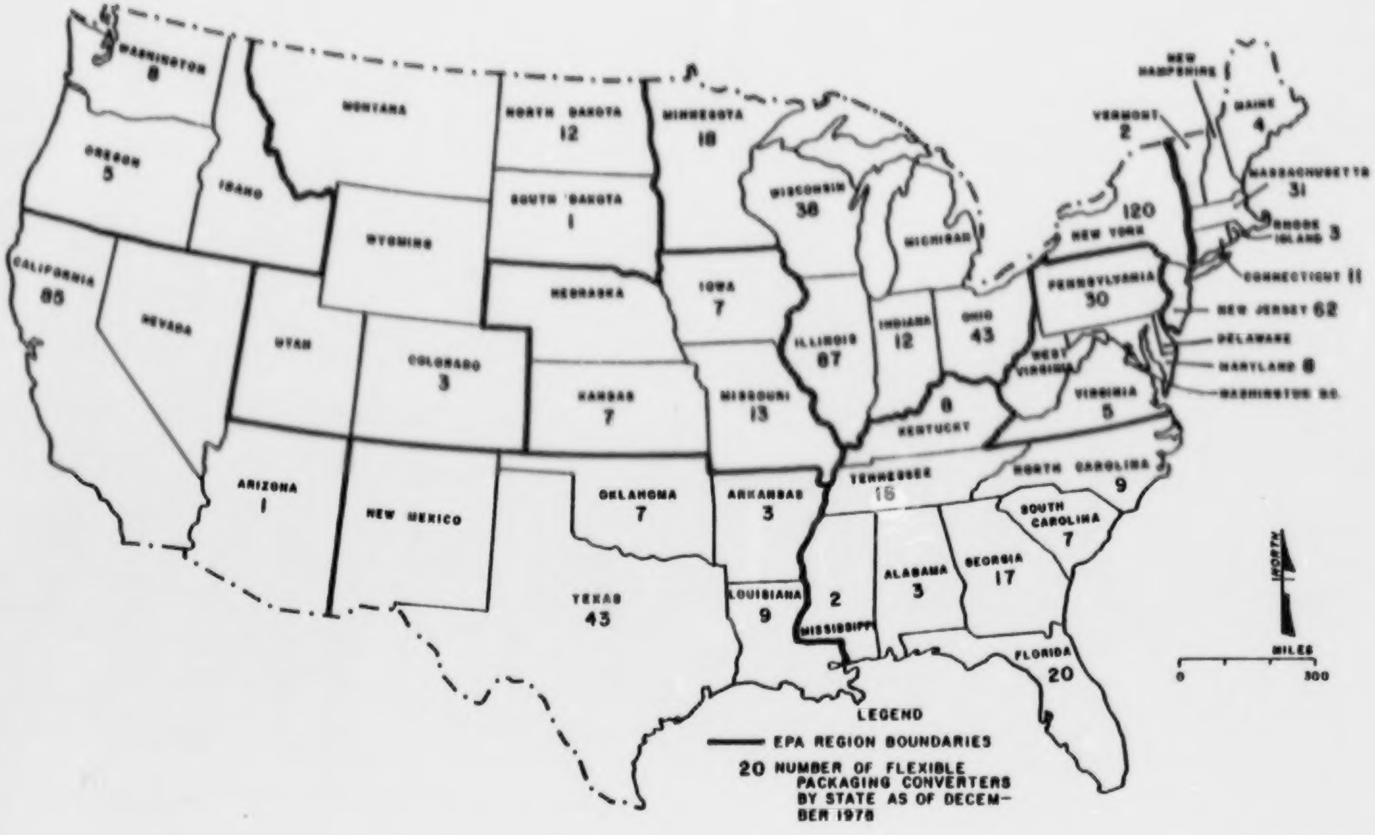
Although the use of flexible packages has a long history, the concept that it constitutes an "industry" is fairly recent. The trade association (FPA) which represents the industry is less than 30 years old: the "industry" does not, at this time, have a Standard Industrial Classification (SIC) number, but several classifications may apply, determined by the material being processed (SIC 2641, Paper Coating and Glazing; SIC 2643, Bags, except Textile Bags; SIC 3079, Miscellaneous Plastic Products; SIC 3497, Metal Foil and Leaf; SIC 2649, Converted Paper and Paperboard Products, N. E. C.; and several classes under the printing industries including SIC 2751 and 2754). Application has been made for an SIC number dedicated to the flexible packaging industry. If granted, it may appear in the 1982 revision of this Department of Commerce publication.

Due to the nature of the industry, and the lack of a specific SIC number it is difficult to develop a statistical portrait of the industry. There are differences of opinion as to whether certain firms are part of the industry or not. For the purposes of this study, the following "profile" has been developed.

There are about 800 plants in, or on the border of, the industry. These range from very large, multiplant operations to small "garage-type" operations employing less than a dozen workers. The plants are widely distributed, since, for many operations, freight and other charges make it desirable to produce these packaging materials as close to the market as possible. Figure 1 shows the distribution of the member companies of the FPA. The distribution is probably skewed in the direction of the larger companies, since this is the experience of most trade associations, but it gives an indication of the wide distribution of the industry.

Very little information is available on the size of various plants, primarily because most surveys which produce this type of information are based on SIC numbers. At the present time, there is no agreement on the most suitable method of expressing plant size. Number of employees, consumption of certain key raw materials, such as coatings, inks, and adhesives and dollar sales all have been suggested.

It has been estimated that approximately 60% of the products of this industry are used on food and related items -- breakfast cereals, bread, meats, vegetables, and frozen products, and approximately 40% on non-food items, with cigarette packages and health care products contributing the largest amount.


WASHINGTON
8
OREGON
5
CALIFORNIA
85
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
3
ARIZONA
1
NEW MEXICO
NORTH DAKOTA
12
SOUTH DAKOTA
1
NEBRASKA
KANSAS
7
OKLAHOMA
7
TEXAS
43
MINNESOTA
18
IOWA
7
MISSOURI
13
ARKANSAS
3
LOUISIANA
9
WISCONSIN
38
ILLINOIS
87
MICHIGAN
INDIANA
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OHIO
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KENTUCKY
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TENNESSEE
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MISSISSIPPI
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ALABAMA
3
GEORGIA
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FLORIDA
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SOUTH CAROLINA
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NORTH CAROLINA
9
VIRGINIA
5
WEST VIRGINIA
PENNSYLVANIA
30
NEW YORK
120
VERMONT
2
NEW HAMPSHIRE
MAINE
4
MASSACHUSETTS
31
RHODE ISLAND 3
CONNECTICUT 11
NEW JERSEY 62
DELAWARE
MARYLAND 8
WASHINGTON D.C.
NORTH
MILES
0
300
LEGEND
EPA REGION BOUNDARIES
20 NUMBER OF FLEXIBLE PACKAGING CONVERTERS BY STATE AS OF DECEMBER 1978

Figure 1. Flexible packaging converters in the United States as of December 1978. (FPA 1979)

Printing, coating, priming, and laminating are the principal processes in the manufacture of flexible packages that result in the emission of any significant amount of volatile solvent.

In the manufacture of flexible packages, it is often necessary to treat the substrate material to modify its appearance or some other property. When applying a design or words to the package, inks are used. These are applied by presses, and the process is referred to as printing.

When a uniform coating, either clear or colored, is applied to the film, the process is referred to as coating; the material is also called a coating, and the machine is referred to as a coater. When the coating is intended as a primer before application of an ink, the machine is often called a priming station. An essentially transparent coating is often referred to as a varnish.

When the packaging matrial is made up of two or more layers of different materials, the process of joining them together (i.e., heat, adhesion, extrusion) is referred to as laminating, the machine is a laminator, and any material used is an adhesive.

When more than one process is applied in one pass through the machine, i.e., a laminator followed by a coater, the machine is usually designated by a combination term--in this case a laminator-coater.

Inks, coatings, or adhesives which are used in the manufacturing process must be dried before the packaging material can be stored or used further. This is accomplished in the drying portion of the process machine, where heated air is blown over the web of material as it passes through the machine. It is the discharge of solvents removed by the heated air during the drying process which gives rise to the VOC emissions from the process.

Presses used in printing these materials are usually of the rotary type. They fall into two classes--gravure and flexo. Gravure or rotogravure presses have the design indented in the roller, and the ink is removed from the higher parts of the roll, so that it is not transmitted to the material being printed. Flexo, or flexographic, presses, on the other hand, pick up the ink on the raised portions of the design, and it is transmitted directly to the material being printed. The processes are very similar to those used in the graphic arts industry.

Coatings are usually applied to the desired thickness by means of a doctor blade, roller, reverse roller, or dip.

Laminators operate on the same general principles as the coaters, except that there will be two or more substrates going into the machine, and the combined paper, plastic film, or foil will be passed through a set of rolls that will bring them together.

Removal of solvents during the drying step must be nearly complete if the material is to be used for food packaging. A typical residual solvent goal will be 3.3 milligrams/sq ft (10,000 mg/ream) of printed or coated area; this goal includes all residual solvents from printing, coating, and/or laminating used in the production of the particular packaging material, and can be equivalent to over 99% removal of solvent applied. This degree of removal, largely dictated by the consumer, is essential to avoid transfer of taste and odor to food products.

# SECTION 3

# PROGRAM DESIGN

## EMISSION DATA COLLECTION

Many of the processes employed in this industry can result in evaporative releases of volatile organic solvents to the atmosphere. Some of these emissions result in ambient odor problems, and a few may even pose direct threats to human health and the environment. However, the major concern with all such evaporative emissions is their atmospheric reaction with combustion product releases such as nitrogen oxides, sulfur oxides, organics, and metal-containing particulates.

These reactions produce the secondary contaminants known as photochemical oxidants, principally consisting of ozone. These oxidants may contribute to perceptible odors, reduced atmospheric visibility, damage to such materials as rubber, leaf injury to vegetation, increased susceptibility to infection, impaired pulmonary function, eye and respiratory irritation, chest constriction, and aggravation of asthma and perhaps other respiratory diseases.

It is the stated goal of the Clean Air Act of 1970 (amended) to prevent such adverse effects on health and welfare through the attainment and maintenance of the National Primary and Secondary Ambient Air Quality Standards. Current EPA emission control strategy is based on data showing that organic emissions are the limiting factor in the production of photochemical oxidants, and that the oxidant standards are best achieved by controlling emission of organic materials. The refining and distribution of petroleum products, and the burning of fuel in mobile and stationary sources form the greatest manmade sources of organic emissions and are a prime target for EPA control. In addition, the evaporative emissions associated with the industrial use of solvents are signnificant, and the EPA strategy requires that these be controlled in the effort to achieve oxidant standards.

When this program began there were no EPA guidelines which were applicable to the flexible packaging industry as such in terms of controlling VOC emissions. For those plants or machines involved in strictly coating or laminating operations, EPA Surface Coating Guidelines (US EPA 1977) would be applicable. The recommended emission limits set in those regulations apply to the surface coating of cans, foils, paper, fabrics, automobiles and light duty trucks. Recently (December 1978) the Office of Air Quality Planning and Standards (OAQPS) of the EPA issued guidelines for the graphic arts industry (US EPA 1978) that will form the basis for regulations by the various States within the next year. EPA has informed the FPA that most of the flexible packaging industry will probably be considered as a part of the graphic arts industry for control purposes, so these guidelines and standards will most likely limit the VOC emissions from the industry in the future.

It is the purpose of this report to describe the emission characteristics of the industry, the availability of cost-effective means for controlling these emissions, and the need for further research and development or demonstration work concerning VOC emission control in the flexible packaging industry. The emission data collection portion of the program was designed to meet the first part of the program purpose.

Goals for the collection of data were:

- Quantification of the total amount of solvent emitted by the flexible packaging industry.
- Estimation of the types of solvents emitted (alcohols, esters, ketones, hydrocarbons, and other solvents, etc.).
- Estimation of the solvent emission by various types of equipment.
- Estimation of the number of sources which may require emission control and the solvent emitted by each.
- Information on emission control systems presently in use.

A questionnaire was designed to provide data on solvent use and emissions from the flexible packaging industry. Information requested included sections on solvent use, emission control equipment (incineration or carbon absorption) currently in use, if any, and operating characteristics of individual production machines. Specific items under each of these areas can be found in Appendix B, which contains the questionnaire, the cover letter and instructional notes.

Over 1,100 questionnaires were mailed by FPA to its membership and to non-member companies believed to be in the flexible packaging industry. A cover letter provided information on the background of the study and an explanation of the procedures for processing the data. Questionnaires were returned to FPA, where the responses were coded, and the cover sheet was removed before being forwarded to WAPORA to insure protection of proprietary information. The questionnaire was also printed in the June 1978 issue of Paper, Film and Foil Converter.

Of the 1,136 questionnaires distributed, 154, or 13.6%, were returned and have been incorporated into this analysis. Statistically, this is a sufficient sample size, and based on FPA experience the data obtained from the sample appear to be representative of the industry. Approximately 60% of the FPA membership responded to the survey.

## DATA ANALYSIS

All the information from the questionnaires was coded and transferred to a computerized data file. Various programs were developed to summarize and analyze the data in order to obtain an overall picture of the sample.

Plant size is an important factor when considering emission control. The amount of total solvent usage on an annual basis (lb/yr) gives an indication of plant size. Frequency distributions were used to determine the number of plants within varying ranges of solvent quantities. The yearly solvent usage among plants within each range was compared to the survey-wide total figure to reveal the contribution to the total from the plants within that range. Additionally, averages for number of machines, solvent concentration in parts per million (ppm) and scheduled hours of operation were computed for the plants included in each size range.

The five major solvent usages in the manufacture of flexible packaging are: (1) inks, (2) coatings, (3) varnishes, (4) adhesives, and (5) cleaners. A variety of minor uses were combined from the reports and classified together as class (6). The proportion of solvent used can also be related to various equipment types. As an indication of the degree of specialization of individual plants, the number of plants that used more than 90% of the total solvent usage in one particular manufacturing process was calculated. Also, the number of plants using less than 10% of the total solvent usage in each of the manufacturing categories was tabulated.

All the programs discussed above were designed to summarize the plants in general. It is of equal interest, however, to do a detailed analysis on each machine type, because there are a few inherent differences among these operations. Five basic machine types were considered: flexographic presses, gravure presses, coaters, laminators, and priming stations. Three additional machine-type groups, established for combination of processes, were also evaluated. These included: press and coater combinations, press and laminator combinations and all other combinations of machines. For each prime machine (i.e., gravure press) the number and percent of total machines were determined, as were their average, minimum, and maximum scheduled production hours and idling percentages. The composition of the solvents in the materials used on these machines is of concern because it gives an indication of the variability of the emissions which must be controlled. Solvent composition by chemical component has been tabulated in lb/yr for each machine category.

Additional programs were developed to describe the particular pieces of equipment. Operating history, age of machine, and exhaust data have been extracted from the data base. All this information is important when considering available emission control alternatives.

## SECTION 4

## DISCUSSION OF SURVEY RESULTS

This survey covers responses from 154 flexibile packaging plants, containing 799 prime machines. It should be noted that certain data were not available in some cases, or could not be estimated with any confidence. Many plants do not keep records on all of the data which was requested, nor do all employ engineers familiar with this information. Therefore, gaps still exist in the data which may cause discrepancies in the tabulated total units and extreme values.

The largest annual solvent use reported in this survey was for a two-plant complex using almost 9 million lb/yr; the smallest plant use was less than 1,000 lb/yr. Table 1 (page 27) shows the distribution of plants within this range. The median usage was about 450,000 lb/yr. Forty percent of the plants used less than 250,000 lb/yr, and over 68% of the plants used less than 1 million lb annually. Eight plants, or 5%, used over 4 million lb/yr. These numbers are important because of the reduced costs of emission control equipment on a $/lb treated basis as the size increases.

It can also be seen from Table 1 that 81 plants use less than 500,000 lb of solvent per year. Although these 81 locations account for more than 50% of the total number of plants, they use less than 5% of the total solvents reported in the survey. Table 2 groups the plants together within each interval of solvent usage and reports a summary of averages for number of machines, solvent emission in ppm, and scheduled hours of operation. As expected, large solvent usage occurred in those plants with large numbers of machines and more scheduled production hours. No consistent relationship between quantity of solvent usage and solvent concentration in the emissions can be demonstrated.

Table 3 (page 28) presents a summary of the reported solvent uses. Inks account for approximately 50% of the total solvents used by the respondents. More than 17% was used in coatings, a similar amount in adhesives, and about 14% was used in varnishes, cleaners, and other uses combined. Of those plants reporting ink usage, one-third used ink almost exclusively, whereas most of the other solvent uses are in conjunction with other materials.

The survey yielded operating data on 799 prime machines with solvent-based applications. Presses are the most prevalent and account for 65% of the total machines, with the flexographic type being the more common. Table 4 (page 28) gives the number of these machines, as well as the ranges in scheduled production hours, and percent of the operating time that they are idle. On the average, the machines are scheduled to operate some 4,900 hr/yr and are idle about 30% of this time. However, it should be noted that these averages are widely influenced by the minimum and maximum extremes.

The composition of the solvents used on these machines determines the type of emissions involved. Information was provided on the solvents used (alcohols, esters, ketones and hydrocarbons) by 146 plants. The results are contained in Table 5 (page 29). Some generalizations can be drawn: Flexographic presses use mainly alcohols and esters, gravure presses use a variety of solvents, coaters use primarily hydrocarbons, laminators use ketones and hydrocarbons, and priming stations chiefly use alcohols.

In general, the alcohols are ethanol, isopropanol, and normal propanol. The esters are usually acetates (ethyl, etc.). The ketones tend to be methyl ethyl ketone (MEK) and methyl isobutyl ketone (MIBK). The hydrocarbons are petroleum derivatives, i.e., aliphatics (hexane, heptane, and octane), and aromatics (toluene and xylene). Petroleum solvents are usually complex mixtures, because these are as effective and cheaper for most purposes than are the pure compounds.

The specific solvents used are chosen for their ability to dissolve the particular resins used, their rate of evaporation, and their costs. Since the solvents evaporate from the substrate during the drying process, and usually make no contribution to the properties of the dried film, it is obviously desirable to use the lowest cost material that will do the job. It is however, very desirable that the mixture retain its solvency as it evaporates and not attack the substrate.

Another important factor of solvent usage concerns the end product when the flexible packing is used for food or health care products; the solvent must evaporate almost completely to prevent imparting any odor or contamination to the products.

Factors involved in the consideration of emission controls include the concentration of solvent, the scheduled machine operating hours, the amount of machine idle time, the temperature at which the process is maintained, the volume of the exhaust air, and the age of the equipment. These factors have been analyzed separately for each machine type, and are summarized in Tables 6, 7, and 8 (pages 30 through 32). The three composite tables have been extracted from the data in Tables 9 through 48 (pages 33 through 48) which describe the frequency distributions of the following items by each machine type: scheduled production hours, idling percent, stack temperature, volume, and age.

A few conclusions related to potential for control technology can be drawn from the data contained in the tables. Variations in the machine operating hours reflect plant size differences or the commodity nature of an operation. In general, the majority of machines in this survey tend to have exhaust volumes of less than 15,000 SCFM and maintain process temperatures well below 400°F. Of the four age groups, by far, the largest number of machines for each equipment type are in the category of 15 years or older. Machines that are utilized regularly, with a small percentage of idling time, and that are relatively new would ideally be the preferred candidates for emission control equipment. When incineration is considered as the control technology, machine running time is important since an incinerator must be kept running when press shutdown times are less than an hour or two, and fuel will continue to be consumed even though no solvents are being emitted from the process.

Many of the machines are idle greater than 30% of the scheduled production time, indicating a low efficiency might be expected. The process temperature and the concentration of solvent vapors in the exhaust both affect the economics of incineration, as they determine how much additional fuel must be supplied from outside sources.

Exhaust emissions were calculated for each machine for which the necessary information was provided. Solvent emissions were calculated in lb/hr and lb/yr, and the solvent concentration in ppm. The following equation was used to calculate ppm:

$$\text{ppm} = (\text{lb/hr} \times 65{,}100) / \text{SCFM}$$

For multi-stack machines a weighted average in ppm was determined. The weighted average was obtained by summing the product of the volume and stack concentrations and then dividing through by the total exhaust volume. Table 49 (page 49) presents a summary of the exhaust data by machine type. Tables 50 through 57 (pages 50 through 73) list the actual emissions from each machine. It must be stressed that these tables contain a few suspect values at the extremes of the range. Therefore, medians rather than means are reported as midpoints in these tables, to reduce the effect of individual erroneous numbers.

The analysis of emissions indicated that for flexographic presses the reported lb/hr of exhaust emissions range from 0 to 154, with a median of 19; the median lb/yr is about 60,000, with single machine values as high as 620,000 lb/yr. Concentration values range from 1 to 2,900 ppm, with a median of 350 ppm. The exhaust data for laminators tend to be somewhat similar to that of flexographic presses; the relevant medians are 18 lb/hr, 50,000 lbs/yr, and 249 ppm.

Gravure presses have lower solvent concentrations when compared to coaters; the medians are 140 ppm and 400 ppm, respectively. Exhaust emissions from these two machine types tend to be the highest, with median lb/hr ranging from 36 to 41, and median lb/yr from 127,000 to 151,000. Several factors could contribute to this: Commodity nature of the operation, greater hours of operation, and larger volumes of exhaust gas. Priming stations tend to have lower concentrations than any other machine type. The combination press-and-coater generally follows the trend of flexographic presses, and the coater-laminator combination more closely reflects the laminator operation.

## SECTION 5

## SOLVENT EMISSION CONTROL TECHNOLOGY

### INTRODUCTION

A finding from the results of the survey is that only four of the respondents showed current use of emission control equipment. Carbon adsorption units were installed at these locations, which all reported using more than 1 million lb/yr of solvent. Use of incinerators was reported by five plants, but further checking by FPA indicated that the units were not operating or were in a facility not producing flexible packaging products.

As a background to this discussion, a review was conducted of the technology and costs for solvent emission control as applied in a wide range of industries where organic solvents are used. Qualitative comparisons of the costs of incineration (direct flame and catalytic) and activated carbon adsorption (adsorption/incineration and adsorption/ recovery) were derived from available recent information. Less information was available on low-solvent technology.

### INCINERATION

Control of organic emissions by thermal incineration involves conducting the solvent-containing air from the drying oven to a combustion chamber where the temperature is raised to a particular value, typically 1400°F, for a given retention time, typically 0.5 to 2.0 seconds. During this period, the solvents are converted to carbon dioxide and water; the temperature and retention time are chosen so as to allow complete oxidation for the particular solvents being used. In most cases the drying system is designed so that the VOC content of the exhaust gases from the dryer is fairly low in order to stay below the lower explosive limit (LEL) of the solvent and to insure acceptable solvent removal from the product; this means that auxiliary fuel must usually be added to reach the incineration temperatures.

The cost of natural gas or No. 2 fuel oil, both commonly used as fuel, forms a large portion of the cost of incineration. Various alternatives have been developed to reduce the amount of fuel required.

#### Primary Heat Recovery

In this system, the hot gases leaving the incinerator are used to heat the incoming air from the oven to the incinerator. Systems with up to 90% heat recovery are available, and their use involves a cost evaluation of the added capital cost and the cost of the fuel saved in the particular operation. Heat recovery of over 40% is generally practical only if natural gas is used as the supplementary fuel, as problems of oil-burner fouling are encountered if the incoming air is heated above 650°F. Conventional gas/gas heat exchangers are limited to about 75% heat recovery; higher recovery involves the use of other techniques such as pebble-bed heat sinks.

### Secondary Heat Recovery

The air used in drying ovens is heated before use. A secondary heat-recovery system uses the hot gases from the incinerator to heat this air instead of fuel-fired heaters, or for other heat needs in the plant. However, this is rarely practicable in the flexible packaging industry.

### Catalytic Incinerators

In the presence of a catalyst bed, the oxidation of the VOC takes place at a considerably lower temperature, such as 800°F instead of the 1400°F which might be used in a conventional thermal incinerator, thus reducing the amount of fuel required.

## ADSORPTION

Adsorption involves passing the VOC-laden air through a bed, which may be either stationary or moving, of material which tends to adsorb the organic materials. The most common adsorptive material is activated carbon, but various organic resins have been used for this purpose also. The system must include some method for bed regeneration after it is laden with VOC materials. Activated carbon or resins can be regenerated by passing steam or hot gas through the bed. These systems often are designed to recover the removed solvent by passing the steam or hot gas through a condenser system.

Economic feasibility of solvent recovery depends on the value of the solvents recovered and the cost of removing them from the adsorbent bed. Where the solvents are used as a blend, or are miscible with water, recovery difficulty is increased.

Problems may be encountered when treating emissions that contain particulates, water-soluble compounds, or compounds difficult to adsorb or desorb. Carbon adsorption produces better results with relatively lower temperatures, because at higher temperatures, while adsorption occurs more quickly, the final amount adsorbed is lower. When air laden with organic vapors is passed through the activated carbon bed, vapors are adsorbed equally at first; but, as the amount of higher boiling constituents retained in the bed increases, the more volatile vapors revaporize. Therefore, incoming air must often be cooled to under 100°F.

## ADSORPTION-INCINERATION

With this method, a carbon adsorption system is installed ahead of the fuel incinerator. The organics are concentrated, removed with a small volume of hot gas, and fed to the incinerator as fuel. This procedure eliminates heating large volumes of contaminated air and can reduce operating costs. As far as it can be ascertained, this system is not commercially practiced in the flexible packaging industry.

## LOW SOLVENTS

Water-borne (low solvent) inks and coatings are defined as having a volatile portion containing at least 75% water and less than 25% organic solvent (US EPA 1978). They are exempt from emission control at the present time. It is not, in general, possible to make coatings or inks without any VOC. There are a few exceptions to this statement but such coatings are highly specialized, and of limited use. Even if all the solvents were replaced by water, some small amount of organic materials, such as antifreeze, coalescing agents, etc., would have to be used in most coatings. In general, water-borne coatings are likely to be somewhat deficient in flexibility, adhesion, and abrasion resistance.

Another approach is the use of a resin which requires less solvent to reduce its viscosity to that required for application. Recently coatings have been developed with a low-viscosity vehicle which will polymerize rapidly, either by reaction with some other component or by ultraviolet or electron-beam radiation. Most of these coatings are still in the development stage at the present time.

The development of these newer low-solvent inks and coatings is handicapped by the lack of adequate methods of testing performance. There is at the present time no way of predicting the performance of a new ink or coating on a specific substrate by a specific method of application other than to subject it to a service test, under the proposed conditions of use.

The technology of low-solvent inks and coatings for flexible packaging products needs further development, and considerable effort is being expended in this area. Presently there are large costs in developing the coatings, modifying existing equipment, purchasing new equipment, and learning to use them. Ink suppliers have stated that it will take from 5 to 10 years to develop water-based substitutes for solvent-based inks. Information is needed on the extent to which water-borne inks and coatings could be used in place of organic solvent-based materials, and on the costs associated with converting large operations to the use of these materials. Also needed is information on the time necessary for industrial conversions and the impact it will have on small job operators.

Another major problem associated with the use of any new material is the requirement for US Department of Agriculture or FDA approval if it is to be used for packaging of foods or health care products. Such approvals can take a period of years, and can involve costs measured in the hundreds of thousands of dollars. Because most products of the flexible packaging industry are used in these areas, obtaining such approval is a critical factor.

## CONDENSERS

Conventional condensers operate by cooling the air stream containing VOC until the vapor pressure of the VOC is low enough so that it will condense. However, for many of the more common solvents in the flexible packaging industry, the vapor pressure is too high, even at 32°F, to lower the VOC content to acceptable limits, and it is often not practical to operate at lower temperatures because of ice formation from moisture in the air. For example, the following solvents all will have concentrations of more than 1250 ppm in the air at 32°F: toluene, xylene, methanol, ethanol, and amyl acetate. Although refrigerated solvent recovery systems are not in use now in the flexible packaging industry, this method is being applied on a pilot basis for recovery of gasoline fumes. Thus, this control method has potential but requires more evaluation.

Recently, a variation of the condenser system has been developed which operates on the principle of providing an inert, moisture-free atmosphere, in this case, nitrogen gas. Recirculation of the inert atmosphere allows solvent concentrations above the LEL. Indirect vaporization of liquid nitrogen cools the exhaust and the VOC are condensed out; the vaporized nitrogen is used to inert the atmosphere over the press. The system, designed for retrofitting on existing presses or inclusion in design of new equipment, as yet has not been tried in the industry.

## MISCELLANEOUS TECHNOLOGY

### Flare Burner

This pollution control device is comprised of a tall stack lined with ceramic. It provides complete combustion of vented gases with low emissions of light and smoke. It is normally used with higher concentratins of VOC, so that auxiliary fuel is not required.

### Sponge Oil

Gases contaminated with vapors from volatile organic liquids are recovered by contacting the vapor-containing gas in an absorbing tower with a sponge oil which absorbs the vapors. The absorbed vapors are recovered and the sponge oil is reused.

## PAST EXPERIENCE IN THE FLEXIBLE PACKAGING INDUSTRY

Direct experience with the use of emission control devices is very limited in the flexible packaging industry. In the past there were not the regulatory or economic incentives to control solvent emissions that are now facing the industry. During 1977, the FPA conducted a survey of its membership requesting comments regarding the success, or lack of it, where control technologies had been applied. Some of the responses from that survey are included here. It should be stressed that the following are opinions held by the respondents.

Most of the responses cited fuel consumption by incinerators and the related cost as a reason for judging that method unsatisfactory. Capital costs for emission control equipment were estimated in one example to be 30% of the total machine costs. Heat recovery was thought to be essential in terms of cost; however, realizing benefits was estimated to take several years. The optimum system in theory was seen as catalytic incineration with heat recovery. Afterburners were seen as applicable for coating operations but not for flexographic or gravure printing operations. In one case the respondent felt that combustion of solvents was incomplete with incineration.

One company installed an incinerator with heat recovery for a rotogravure press. Solvent laden exhaust air (<25% LEL) was preheated and ducted to the incinerator. Incineration took place at 1400°F for 0.6 seconds. A heat exchanger was present in the stack and transferred heat to process air. Problems with the system resulted from the lack of response to the change in exhaust volume and solvent concentration. Maintenance problems were also significant. Actual fuel consumption was six times that which was projected at time of installation. It was concluded that after a year and a half of operation that the system was unworkable. The original incinerator had a capacity of 20 million (MM) BTU; however, it was later determined that a 50 MM BTU capacity would be needed to meet the requirements. It was estimated such a unit would use almost five times as much fuel as the 20 MM BTU unit, or more than 5 gal of oil for 1 gal of solvent.

Previous experience of flexible packagers with carbon adsorption led to the general comments that the method was successful in fume reduction but also unacceptably high in costs. As several solvents were generally used in operations, it was not possible to reuse the recovered solvents without distillation. It was felt that the added cost was prohibitive. Other costs included production of steam for bed regeneration, and high capital and installation costs. There was also objection to the size and weight of the units.

A case study of a 17,000 CFM carbon bed solvent recovery unit used with a coater revealed that fouling of the bed with a low molecular weight resin was a problem, decreasing recovery efficiency. The cost of recovery in this case was calculated to be almost 2½ times the original cost of the solvent. Where the solvent was water soluble, it was not only lost for recovery but presented a wastewater burden. When distillation was used for separation after recovery, azeotrope formation was encountered. After steam regeneration of the unit, the recovered solvent was not useful as a fuel because of the large amount of water present.

# SECTION 6

## COST OF CONTROL OF VOLATILE ORGANIC COMPOUNDS

To obtain an estimate of the cost of controlling VOC, the costs of incinerators and activated carbon adsorption units were obtained from manufacturers and from their literature. Cost quotations were requested from the manufacturers for units of several sizes on the basis of an installed unit on the plant site, ready to run; they did not include site preparation and site piping and duct work. Costs or useful data were received from the following companies:

| | |
|---|---|
| Air Resources, Inc. | Palatine, IL |
| Airco, Inc. | Murray Hill, NJ |
| American Air Filter Co., Inc. | Louisville, KY |
| Bayco Industries of CA | San Leandro, CA |
| Burn-Zol Way | Randolph, NJ |
| Calgon Corp. | Pittsburg, PA |
| CEA Combustion, Inc. | Stamford, CN |
| C & N Combustion | Troy, MI |
| CTI-Nuclear | Cleveland, OH |
| Englehard | Union, NJ |
| Granco-Clark | Belding, MI |
| Hoyt Mfg. Corp. | Westport, MA |
| Peabody Gordon-Piatt, Inc. | Winfield, KS |
| Reeco, Inc. | Morris Plains, NJ |
| TEC Systems | DePere, WI |
| Trane Thermal Co. | Conshohocken, PA |
| Union Carbide Environmental Systems | Tonawanda, NY |

In addition, several literature references were used to assist in preparation of cost estimates. (See References at end of section.) Based on the above information, the following equations were developed to represent the cost of the various types of equipment:

a. Thermal Incinerators Without Heat Recovery

Unit Cost, \$, = 2.7 x (SCFM) + 22,000

b. Thermal Incineration with 70% Heat Recovery

Unit Cost, \$, = 7.7 x (SCFM) + 27,000

c. Carbon Adsorption with Steam Regeneration and Solvent Recovery

Unit Cost, \$, = [8.1 x (SCFM) + 17,800] x [1 + (ppm/3500)]

There was considerable variation in the cost figures obtained, especially in the costs for incinerators, where the spread in values was approximately ±50%.

The cost of installation of the control unit can vary considerably from plant to plant, depending on the complexity of the particular job. Installation will include preparation of a foundation, and in some cases, a building as well as various piping, duct work, and electric work. Fans and instrumentation are included in the price of the unit. To account for installation costs, total installed costs were obtained by multiplying the unit costs by the following factors, estimated primarily from literature references 3 and 8:

| Unit | Factor |
|---|---|
| Incinerator | 2.9 |
| Incinerator with 70% Heat Recovery | 2.1 |
| Activated Carbon | 2.7 |

Where required, the costs were updated to Summer, 1980, costs using the Chemical Engineering plant cost index.

The costs of VOC control were based on the annual costs for operation of the various units. Maintenance, tax, depreciation, and interest costs were estimated to be 30% of the installed cost estimate. Other recurring costs, all in \$/year, were estimated as follows:

o Electrical Costs, (Electricity at \$0.055/kw-hr)

Annual Cost = (HP) x (0.75) x (hr/yr) x 0.055

where HP is required horse-power of fan, and (hr/yr) is scheduled machine time.

For incinerators,

$$HP = [(SCFM)^{1.0363} \times (459 + Ti)^{1.85}]/(94.2 \times 10^6)$$

where Ti is the temperature of the exhaust from the machine. With 70% heat recovery, the HP was increased by 74%.

For activated carbon,

$$HP = (SCFM) \times 4 \times 10^{-3}$$

- Fuel Costs, (No. 2 fuel oil at \$0.95/gal, or \$7.13/MM BTU)

  Annual Cost = (BTU/hr) x $(7.13 \times 10^{-6})$ x (hr/yr)

  BTU/hr = SCFM x [1.28 x (1400-Ti) x (1-HR) - 0.29 x (ppm) x (RT)]

  where HR is the fraction of heat recovery, in this case either 0 or 0.7; (ppm) is the concentration of VOC in the exhaust; and (RT) is the running time, or that fraction of the scheduled operating time that the machine is actually in production.

- Steam Costs, (Steam at \$9/1000 lb)

  Annual Cost = 3.5 x $(9 \times 10^{-3})$ x (lb VOC/yr)

- Water Costs, (Water at \$0.30/1000 gal)

  Annual Cost = (SCFM) x (hr/yr) x $(0.30 \times 10^{-3})$

- Carbon Replacement, (Based on 10% replacement/year and \$1.27/lb)

  Annual Cost = 0.14 x (SCFM)

- Condensate Treatment (Contract disposal, 70% solution, \$65/drum)

  Annual Cost = 0.22 x (lb VOC/yr)

Cost figures based on annual cost and \$/lb of VOC removed were calculated for 342 machines which had responded to the survey with sufficient data. Itemized costs are presented in Tables 58, 59, 60, and 61 (pages 75 through 110) for thermal incineration without heat recovery, thermal incineration with 70% heat recovery, activated carbon with steam regeneration, without credit for recovered solvent, and activated carbon adsorption with condensate disposal costs included. In the flexible packaging industry the solvents used are generally mixtures which would be difficult to separate and recover, and that recovery value would be difficult to estimate, and probably no more than fuel value. Also, most of the solvents used by the industry are water soluble and separation from the condensed steam will increase the cost. For each machine, annual cost and annual cost per pound of VOC removed are compared for the three emission control methods in Tables 62 and 63. Table 62 reflects cost estimates for activated carbon where special treatment of the steam condensate is not required; Table 63 considers the case where a charge for disposal of the condensate is included.

From the cost data, the following conclusions can be drawn:

1. For 84% of the machines, activated carbon was the least expensive VOC control method; incineration with heat recovery was less costly on 15%, of the machines, and incineration without heat recovery was least expensive on only 1% of the machines. When a charge for condensate disposal was included, activated carbon adsorption was still the least expensive option for 70% of the machines.

2. Average annual costs per machine for control by the four techniques were approximately as follows:

| | |
|---|---|
| Incineration | $561,000/year |
| Incineration with 70% heat recovery | 209,000 |
| Activated carbon with steam regeneration | 118,000 |
| Activated carbon with charge for condensate disposal | 160,000 |

3. Average costs per pound of solvent vapor removed ranged upward from less than $0.10/lb VOC. The distribution of these costs (in percent) for various control technologies was as follows:

| Cost Range ($/lb VOC) | Carbon Adsorption (1) | Carbon Adsorption (2) | Incineration No Heat Recovery | Incineration 70% Heat Recovery | Least Expensive Technique (2) |
|---|---|---|---|---|---|
| Under $0.50 | 31 | 8 | 1 | 17 | 19 |
| $0.50-$1.00 | 22 | 34 | 12 | 20 | 27 |
| $1.00-$3.00 | 29 | 37 | 30 | 32 | 35 |
| Over $3.00 | 18 | 21 | 57 | 31 | 19 |

---

(1) Charge for disposal of steam regeneration condensate not included.
(2) Includes charge for activated carbon steam regeneration condensate disposal.

4. For activated carbon units, the annual costs associated with capital charges, maintenance, and labor are the major part of the annual costs, ranging from 60% for some of the larger, more heavily used machines, to more than 90% for smaller units that are used only on a part-time basis. When condensate disposal is necessary, these costs can vary from less than 10% of the total annual cost to over 80% if this control technique were to be applied to a gas stream of high VOC content.

5. For incinerators, except when the VOC content of the exhaust is high and for very small or rarely used units, fuel costs are the major portion of the annual expense; and because of this, heat recovery is almost always economical. The 70% heat recovery level considered here was found to be economical in most cases in spite of the higher capital costs. Units with up to 90% heat recovery are available at increased capital cost.

6. The incinerator size required to control the VOC emissions based on stack volumes and temperatures reported for each machine was calculated. Sizes of incinerators ranged from less than 1 million (MM) to over 100 million BTU/hr. However, as it can be noted from the size distribution on the next page, over 50% of the machines in the survey could be equipped with incinerator units of less than 10 MM BTU/hr in size.

| Incinerator Size (MM BTU) | No. of Units | % of Total | Cum % |
|---|---|---|---|
| 0 - 4 | 67 | 19.6 | 19.6 |
| 5 - 9 | 111 | 32.5 | 52.0 |
| 10 -14 | 55 | 16.1 | 68.1 |
| 15 -19 | 40 | 11.7 | 79.8 |
| 20 -24 | 18 | 5.3 | 85.1 |
| 25 -29 | 7 | 2.0 | 87.1 |
| 30 + | 44 | 12.9 | 100.0 |
| Total | 342 | | |

7. In general, the annual costs for such items as capital, maintenance, labor, fuel, and water increase almost in proportion to the amount of contaminated air sent through the control device (SCFM). As the amount of VOC in the incoming air increases, the cost of incineration decreases, since the heat-value of the VOC replaces part of the fuel required to reach incineration temperature, and the cost of activated carbon adsorption increases, since regeneration is more frequent and there may be cost of condensate disposal if the solvent is water soluble. This study indicates that when condensate disposal is required, the break-even point is in the range of 500 to 700 ppm VOC; below this point, activated carbon usually is less expensive; and above, incineration with heat recovery will be less costly, with, of course, some overlap. When the solvents are not water soluble and condensate disposal is thus not required, this break-even range increases to 900 to 1,000 ppm.

The importance of VOC concentration in reducing the fuel costs of incineration can be seen by consideration of the case where toluene is the solvent. With 70% heat recovery, fuel requirements decrease with increasing VOC content until at 1,860 ppm, no fuel is required. Without heat recovery, the point of zero fuel requirement is reached at about 6,000 ppm, and it would be at about 600 ppm with 90% heat recovery.

8. The problem of emissions from flexographic presses is complicated by the fact that the materials of construction of these presses preclude the use of hydrocarbon solvents, so that inks are primarily based on water-soluble solvents. These presses are the most widely used machines in the flexible packaging industry, accounting for 46% of the machines in the survey. The type of emission control system found to be the most economical in 84% of the cases studied was carbon adsorption, with incineration with heat recovery being most economical in 15%. However, if the economically preferred solution of carbon adsorption with steam regeneration of the carbon is chosen, the condensed material will typically be a 15% to 20% solution of the solvents in water, which presents a disposal problem.

The problem can be examined by consideration of a typical machine, No. 2 of plant 103, which lies at about the median of the flexographic presses in terms of size and solvent emission content. Some of the pertinent statistics of this machine are as follows:

| | |
|---|---|
| Exhaust volume | 5,000 CFM |
| Solvent concentration | 321 ppm |
| Solvent exhaust | 61,000 lb/yr |
| Operating time | 5,531 hr/yr |
| Idle time | 31 percent |
| Exhaust temperature | 140°F. |

Control options available for this machine include the following:

(a) Incineration without heat recovery. The estimated annual cost was $352,000, of which fuel accounted for $319,000.

(b) Incineration with heat recovery. Heat recovery can substantially reduce the amount of fuel required. For example, the estimated annual cost of control with 70% heat recovery was $135,000, with fuel accounting for $90,000. The pebble-bed type of heat recovery unit is capable of higher heat recoveries, at added capital cost. The economic feasibility of this higher recovery would have to be compared with increased capital costs.

(c) Catalytic incineration. The fuel costs of incineration can also be reduced by catalytic incineration at lower temperatures. Fuel use is typically one-half that with regular incineration, and can be further reduced by heat recovery. Insufficient cost data on catalytic incinerators were obtained to allow cost estimation, but in general, this method appears to be competitive with heat recovery as a method of fuel savings.

(d) Carbon Adsorption. Carbon adsorption with steam regeneration of the carbon bed has an estimated annual cost of $67,000, about 50% of the cost of incineration with 70% heat recovery. However, about 150 gal/day of a 15% water solution of the recovered solvents would be produced, and would have to be disposed of. Disposal methods could include incineration of the steam-solvent vapor mixture, incineration of the water-solvent condensate, disposal by a contractor, or reclamation of the solvent. Disposal cost are estimated at $13,500/yr, and thus would raise the cost by 20%. The solvent systems are generally too complex to permit economical recovery by distillation in the plant, but might be economical in certain situations. Commercial solvent-reclamation operations are available in many areas, and might offer an economical solution.

Commercial processes are available which regenerate the carbon by either hot nitrogen or by heating the bed under vacuum. Both permit the recovery of the solvents with very little water contamination. Neither are practiced at present in the industry, but have been used in other similar applications.

(e) Condensers. A new process, described earlier, is available which uses an inert nitrogen atmosphere in the press, and condenses the solvent vapors at low temperatures obtained from liquid nitrogen evaporation. The process has not been used in the industry, and detailed costs are not available.

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# APPENDIX A

## TABULATED RESULTS OF SURVEY DATA

### TABLE 1

### DISTRIBUTION OF TOTAL SOLVENT USAGE

| SOLVENT USAGE LBS/YEAR | NO. OF PLANTS | % USAGE OF TOTAL SOLVENTS ( 165154254 ) | % OF PLANTS | CUM % |
|---|---|---|---|---|
| 0 ≤ TO < 5000 | 7 | .0 | 4.5 | 4.5 |
| 5000 ≤ TO < 25000 | 12 | .1 | 7.8 | 12.3 |
| 25000 ≤ TO < 100000 | 24 | .8 | 15.6 | 27.9 |
| 100000 ≤ TO < 250000 | 19 | 1.9 | 12.3 | 40.3 |
| 250000 ≤ TO < 500000 | 19 | 4.4 | 12.3 | 52.6 |
| 500000 ≤ TO < 1000000 | 25 | 10.2 | 16.2 | 68.8 |
| 1000000 ≤ TO < 2000000 | 21 | 18.4 | 13.6 | 82.5 |
| 2000000 ≤ TO < 3000000 | 11 | 15.8 | 7.1 | 89.6 |
| 3000000 ≤ TO < 4000000 | 8 | 17.0 | 5.2 | 94.8 |
| 4000000 + | 8 | 31.3 | 5.2 | 100.0 |
| TOTAL: | 154 | | | |

### TABLE 2

### SOLVENT USAGE DATA COMBINED BY PLANT

| SOLVENT USAGE LBS/YEAR | NO. OF PLANTS | AVG. NO. MACHINES | AVERAGE PPM | AVG.HOURS OPERATION |
|---|---|---|---|---|
| 0 ≤ TO < 5000 | 7 | 1 ( 86) | 0 ( 0) | 1140 ( 86) |
| 5000 ≤ TO < 25000 | 12 | 1 ( 92) | 0 ( 0) | 2722 ( 92) |
| 25000 ≤ TO < 100000 | 24 | 3 ( 96) | 1085 ( 25) | 3524 ( 96) |
| 100000 ≤ TO < 250000 | 19 | 3 (100) | 236 ( 42) | 5236 (100) |
| 250000 ≤ TO < 500000 | 19 | 5 (100) | 521 ( 68) | 4512 (100) |
| 500000 ≤ TO < 1000000 | 25 | 6 (100) | 318 ( 52) | 4435 (100) |
| 1000000 ≤ TO < 2000000 | 21 | 6 (100) | 596 ( 62) | 5268 (100) |
| 2000000 ≤ TO < 3000000 | 11 | 8 ( 91) | 915 ( 64) | 5348 ( 91) |
| 3000000 ≤ TO < 4000000 | 8 | 12 (100) | 628 ( 75) | 4808 (100) |
| 4000000 + | 8 | 14 (100) | 194 ( 75) | 5414 (100) |
| TOTAL: | 154 | | | |

NUMBERS IN PARENTHESES INDICATE PERCENTAGE OF PLANTS WHERE DATA WERE AVAILABLE

## TABLE 3

### SUMMARY BY USE OF SOLVENT

| SOLVENT USES | NO. REPORTING USE | TOTAL SOLVENTS (MILLION LBS/YR) | PERCENT OF ALL SOLVENTS | NO. PLANTS WITH USE ≥ 90 •/• | NO. PLANTS WITH USE ≤ 10 •/• |
|---|---|---|---|---|---|
| 1. INKS | 140 | 84.4 | 51.02 | 48 | 12 |
| 2. COATINGS | 56 | 28.8 | 17.44 | 5 | 17 |
| 3. VARNISH | 37 | 9.6 | 5.83 | 0 | 17 |
| 4. ADHESIVES | 61 | 28.9 | 17.47 | 6 | 17 |
| 5. CLEANING | 17 | 3.3 | 1.97 | 0 | 12 |
| 6. OTHER | 42 | 10.4 | 6.27 | 0 | 9 |
|  | TOTAL: | 165.3 |  |  |  |

## TABLE 4

### GENERAL SUMMARY OF EQUIPMENT DATA

(BASED ON 154 PLANTS)

|  |  |  | SCHED PRODUCTION HR/YR |  |  | MACH IDLE TIME AS •/• |  |  |
|---|---|---|---|---|---|---|---|---|
| EQUIPMENT TYPE | NUMBER | •/• | MIN | AVG | MAX | MIN | AVG | MAX |
| 1. PRESS-F | 366 | 45.8 | 57 | 4763 | 8700 | 0 | 31 | 99 |
| 2. PRESS-G | 153 | 19.1 | 105 | 4726 | 8424 | 0 | 37 | 99 |
| 3. COATER | 59 | 7.4 | 250 | 4717 | 8736 | 5 | 25 | 93 |
| 4. LAMINATOR | 88 | 11.0 | 190 | 4362 | 8592 | 6 | 32 | 89 |
| 5. PRIMING STA | 47 | 5.9 | 2400 | 5463 | 7800 | 3 | 30 | 93 |
| 6. PRESS-COATER | 13 | 1.6 | 500 | 5264 | 6240 | 0 | 32 | 92 |
| 7. LAMINATOR-COATR | 60 | 7.5 | 675 | 5044 | 8736 | 4 | 27 | 66 |
| 8. OTHER COMB. | 13 | 1.6 | 265 | 4622 | 6600 | 10 | 34 | 87 |
| TOTAL: | 799 |  |  |  |  |  |  |  |

# TABLE 5

## COMPOSITION OF TOTAL SOLVENTS REPORTED IN MILLION LBS/YEAR

(BASED ON 146 PLANTS REPORTING SOLVENT COMPOSITION)

| EQUIPMENT TYPE | ALCOHOLS | ESTERS | KETONES | HYDROCARBONS | OTHER | TOTAL* |
|---|---|---|---|---|---|---|
| 1. PRESS-FLEXO | 26.244 (67)** | 8.176 (21) | .209 ( 1) | 2.234 ( 6) | 2.173 ( 6) | 39.037 |
| 2. PRESS-GRAVURE | 6.957 (14) | 21.598 (44) | 5.332 (11) | 14.851 (30) | .583 ( 1) | 49.322 |
| 3. COATER | 2.372 (12) | 2.963 (15) | 2.607 (13) | 11.340 (58) | .327 ( 2) | 19.608 |
| 4. LAMINATOR | 2.325 (12) | 3.821 (20) | 5.255 (28) | 6.845 (36) | .560 ( 3) | 18.805 |
| 5. PRIMING STATION | 4.184 (68) | .606 (10) | .769 (13) | .488 ( 8) | .064 ( 1) | 6.110 |
| 6. PRESS-COATER | .135 (15) | .172 (19) | .346 (38) | .249 (27) | .017 ( 2) | .919 |
| 7. LAMINATOR-COATER | 1.830 (41) | .598 (14) | .951 (22) | .353 ( 8) | .681 (15) | 4.413 |
| 8. OTHER COMBINATION | 0.000 ( 0) | 0.000 ( 0) | 0.000 ( 0) | 0.000 ( 0) | 0.000 ( 0) | 0.000 |
| TOTALS | 44.047 | 37.935 | 15.469 | 36.360 | 4.404 | 138.215 |

TOTAL SOLVENTS REPORTED 165.154

SOLVENTS NOT ACCOUNTED FOR 26.940

* MAY NOT EQUAL TOTAL DUE TO ROUNDING

** INDICATE PERCENT OF TOTAL FOR EACH EQUIPMENT TYPE

## TABLE 6

## APPROXIMATE MEDIAN OF OTHER FACTORS BY MACHINE TYPE

| | TOTAL UNITS | SCHEDULED PRODUCTION (HR/YR) | IDLING TIME (%) | STACK TEMPERATURE (°F) |
|---|---|---|---|---|
| Flexo-Presses (Tables 9-13) | 366 | 5050 | 31 | 140 |
| Gravure-Presses (Tables 14-18) | 153 | 5100 | 33 | 180 |
| Coaters (Tables 19-23) | 59 | 5300 | 22 | 150 |
| Laminators (Tables 24-28) | 88 | 4750 | 32 | 140 |
| Priming Stations (Tables 29-33) | 47 | 5600 | 27 | 150 |
| Press and Coater (Tables 34-38) | 13 | 6200 | 34 | 75 |
| Coater and Laminator (Tables 39-43) | 60 | 5100 | 30 | 170 |
| Other Combinations (Tables 44-48) | 13 | 5600 | 31 | 220 |

## TABLE 7

## STACK VOLUME DISTRIBUTION (SCFM) BY MACHINE TYPE

| | 0 TO 4999 | 5000 TO 9999 | 10000 TO 14999 | 15000 TO 19999 | 20000 TO 24999 | 25000 TO 29999 | 30000 TO 34999 | 35000 TO 39999 | 40000 + | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| Flexo-Presses | 100 | 81 | 8 | 4 | 3 | 1 | 2 | - | - | 199 |
| Gravure-Presses | 12 | 24 | 12 | 7 | 21 | 9 | 3 | 1 | 8 | 97 |
| Coaters | 12 | 8 | 11 | 5 | 1 | 2 | 1 | - | 5 | 45 |
| Laminators | 20 | 16 | 18 | 1 | 2 | - | 1 | 1 | - | 59 |
| Priming Stations | 6 | 12 | 8 | 4 | - | 1 | - | 1 | 2 | 34 |
| Press and Coater | 1 | 3 | 1 | - | 2 | - | - | - | - | 7 |
| Coater and Laminator | 20 | 13 | 11 | 1 | 1 | 3 | 1 | - | - | 50 |
| Other Combinations | 1 | 3 | 2 | - | - | - | - | - | 1 | 7 |

TABLE 8

## AGE OF EQUIPMENT (YEARS) BY MACHINE TYPE

| | 0 - 4 | 5 - 9 | 10 - 14 | 15+ | TOTAL |
|---|---|---|---|---|---|
| Flexo-Presses | 45 | 61 | 99 | 133 | 338 |
| Gravure-Presses | 13 | 21 | 26 | 90 | 150 |
| Coaters | 6 | 14 | 19 | 20 | 59 |
| Laminators | 5 | 17 | 17 | 48 | 87 |
| Priming Stations | 1 | 8 | 15 | 22 | 46 |
| Press and Coater | 2 | 2 | 3 | 6 | 13 |
| Coater and Laminator | 8 | 16 | 14 | 21 | 59 |
| Other Combinations | 1 | 2 | 4 | 6 | 13 |

## TABLE 9

### SCHEDULED PRODUCTION HOURS FOR: PRESSES - FLEXO

| RANGE IN HOURS | NO. OF UNITS | °/° OF UNITS (KNOWN) | CUM °/° (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 13 | 4 | 3.6 | |
| 1000 ≤ TO < 1500 | 7 | 1.9 | 5.5 |
| 1500 ≤ TO < 2000 | 11 | 3.0 | 8.5 |
| 2000 ≤ TO < 2500 | 40 | 10.9 | 19.4 |
| 2500 ≤ TO < 3000 | 17 | 4.6 | 24.0 |
| 3000 ≤ TO < 3500 | 14 | 3.8 | 27.9 |
| 3500 ≤ TO < 4000 | 16 | 4.4 | 32.2 |
| 4000 ≤ TO < 4500 | 43 | 11.7 | 44.0 |
| 4500 ≤ TO < 5000 | 21 | 5.7 | 49.7 |
| 5000 ≤ TO < 5500 | 16 | 4.4 | 54.1 |
| 5500 ≤ TO < 6000 | 31 | 8.5 | 62.6 |
| 6000 ≤ TO < 6500 | 66 | 18.0 | 80.6 |
| 6500 ≤ TO < 7000 | 12 | 3.3 | 83.9 |
| 7000 ≤ TO < 7500 | 25 | 6.8 | 90.7 |
| 7500 ≤ TO < 8000 | 0 | 0.0 | 90.7 |
| 8000 + | 34 | 9.3 | 100.0 |
| REPORTED: | 366 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 366 | | |

## TABLE 10

### PERCENT OF MACHINE IDLE TIME FOR: PRESSES - FLEXO

| °/° OF SCHED PROD TIME | NO. OF UNITS | °/° OF UNITS (KNOWN) | °/° CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 9 | 2.5 | 2.5 |
| 5 - 9 | 11 | 3.0 | 5.5 |
| 10 - 14 | 27 | 7.4 | 12.9 |
| 15 - 19 | 29 | 8.0 | 20.9 |
| 20 - 24 | 54 | 14.9 | 35.8 |
| 25 - 29 | 47 | 12.9 | 48.8 |
| 30 - 34 | 49 | 13.5 | 62.3 |
| 35 - 39 | 42 | 11.6 | 73.8 |
| 40 + | 95 | 26.2 | 100.0 |
| REPORTED: | 363 | | |
| NOT REPORTED | 3 | .8 | |
| TOTAL: | 366 | | |

## TABLE 11

### MINIMUM STACK TEMPERATURE FOR: PRESSES - FLEXO

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 47 | 17.0 | 17.0 |
| 100 ≤ TO < 200 | 180 | 65.0 | 81.9 |
| 200 ≤ TO < 300 | 39 | 14.1 | 96.0 |
| 300 ≤ TO < 400 | 11 | 4.0 | 100.0 |
| REPORTED: | 277 | | |
| NOT REPORTED | 89 | 24.3 | |
| TOTAL: | 366 | | |

## TABLE 12

### VOLUME OF EXHAUST AIR FOR: PRESSES - FLEXO

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 100 | 50.3 | 50.3 |
| 5000 ≤ TO < 10000 | 81 | 40.7 | 91.0 |
| 10000 ≤ TO < 15000 | 8 | 4.0 | 95.0 |
| 15000 ≤ TO < 20000 | 4 | 2.0 | 97.0 |
| 20000 ≤ TO < 25000 | 3 | 1.5 | 98.5 |
| 25000 ≤ TO < 30000 | 1 | .5 | 99.0 |
| 30000 ≤ TO < 35000 | 2 | 1.0 | 100.0 |
| REPORTED: | 199 | | |
| NOT REPORTED | 167 | 45.6 | |
| TOTAL: | 366 | | |

## TABLE 13

### AGE OF EQUIPMENT FOR: PRESSES - FLEXO

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 45 | 13.3 | 13.3 |
| 5 - 9 | 61 | 18.0 | 31.4 |
| 10 - 14 | 99 | 29.3 | 60.7 |
| 15 + | 133 | 39.3 | 100.0 |
| REPORTED: | 338 | | |
| NOT REPORTED | 28 | 7.7 | |
| TOTAL: | 366 | | |

## TABLE 14

### SCHEDULED PRODUCTION HOURS FOR: PRESSES - GRAVURE

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 5 | 3 | 3.3 | |
| 1000 ≤ TO < 1500 | 4 | 2.6 | 5.9 |
| 1500 ≤ TO < 2000 | 5 | 3.3 | 9.2 |
| 2000 ≤ TO < 2500 | 12 | 7.8 | 17.0 |
| 2500 ≤ TO < 3000 | 3 | 2.0 | 19.0 |
| 3000 ≤ TO < 3500 | 11 | 7.2 | 26.1 |
| 3500 ≤ TO < 4000 | 7 | 4.6 | 30.7 |
| 4000 ≤ TO < 4500 | 15 | 9.8 | 40.5 |
| 4500 ≤ TO < 5000 | 14 | 9.2 | 49.7 |
| 5000 ≤ TO < 5500 | 4 | 2.6 | 52.3 |
| 5500 ≤ TO < 6000 | 19 | 12.4 | 64.7 |
| 6000 ≤ TO < 6500 | 30 | 19.6 | 84.3 |
| 6500 ≤ TO < 7000 | 3 | 2.0 | 86.3 |
| 7000 ≤ TO < 7500 | 18 | 11.8 | 98.0 |
| 7500 ≤ TO < 8000 | 1 | .7 | 98.7 |
| 8000 + | 2 | 1.3 | 100.0 |
| REPORTED: | 153 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 153 | | |

## TABLE 15

### PERCENT OF MACHINE IDLE TIME FOR: PRESSES - GRAVURE

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 5 | 3.3 | 3.3 |
| 5 - 9 | 4 | 2.6 | 5.9 |
| 10 - 14 | 3 | 2.0 | 7.8 |
| 15 - 19 | 3 | 2.0 | 9.8 |
| 20 - 24 | 18 | 11.8 | 21.6 |
| 25 - 29 | 21 | 13.7 | 35.3 |
| 30 - 34 | 23 | 15.0 | 50.3 |
| 35 - 39 | 19 | 12.4 | 62.7 |
| 40 + | 57 | 37.3 | 100.0 |
| REPORTED: | 153 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 153 | | |

## TABLE 16

### MINIMUM STACK TEMPERATURE FOR: PRESSES - GRAVURE

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 18 | 16.5 | 16.5 |
| 100 ≤ TO < 200 | 52 | 47.7 | 64.2 |
| 200 ≤ TO < 300 | 29 | 26.6 | 90.8 |
| 300 ≤ TO < 400 | 4 | 3.7 | 94.5 |
| 400 ≤ TO < 500 | 0 | 0.0 | 94.5 |
| 500 ≤ TO < 1000 | 0 | 0.0 | 94.5 |
| 1000 + | 6 | 5.5 | 100.0 |
| REPORTED: | 109 | | |
| NOT REPORTED | 44 | 28.8 | |
| TOTAL: | 153 | | |

## TABLE 17

### VOLUME OF EXHAUST AIR FOR: PRESSES - GRAVURE

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 12 | 12.4 | 12.4 |
| 5000 ≤ TO < 10000 | 24 | 24.7 | 37.1 |
| 10000 ≤ TO < 15000 | 12 | 12.4 | 49.5 |
| 15000 ≤ TO < 20000 | 7 | 7.2 | 56.7 |
| 20000 ≤ TO < 25000 | 21 | 21.6 | 78.4 |
| 25000 ≤ TO < 30000 | 9 | 9.3 | 87.6 |
| 30000 ≤ TO < 35000 | 3 | 3.1 | 90.7 |
| 35000 ≤ TO < 40000 | 1 | 1.0 | 91.8 |
| 40000 + | 8 | 8.2 | 100.0 |
| REPORTED: | 97 | | |
| NOT REPORTED | 56 | 36.6 | |
| TOTAL: | 153 | | |

## TABLE 18

### AGE OF EQUIPMENT FOR: PRESSES - GRAVURE

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 13 | 8.7 | 8.7 |
| 5 - 9 | 21 | 14.0 | 22.7 |
| 10 - 14 | 26 | 17.3 | 40.0 |
| 15 + | 90 | 60.0 | 100.0 |
| REPORTED: | 150 | | |
| NOT REPORTED | 3 | 2.0 | |
| TOTAL: | 153 | | |

## TABLE 19

### SCHEDULED PRODUCTION HOURS FOR: COATERS

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 5 | 8 | 8.5 | |
| 1000 ≤ TO < 1500 | 0 | 0.0 | 8.5 |
| 1500 ≤ TO < 2000 | 4 | 6.8 | 15.3 |
| 2000 ≤ TO < 2500 | 2 | 3.4 | 18.6 |
| 2500 ≤ TO < 3000 | 5 | 8.5 | 27.1 |
| 3000 ≤ TO < 3500 | 2 | 3.4 | 30.5 |
| 3500 ≤ TO < 4000 | 3 | 5.1 | 35.6 |
| 4000 ≤ TO < 4500 | 3 | 5.1 | 40.7 |
| 4500 ≤ TO < 5000 | 2 | 3.4 | 44.1 |
| 5000 ≤ TO < 5500 | 5 | 8.5 | 52.5 |
| 5500 ≤ TO < 6000 | 3 | 5.1 | 57.6 |
| 6000 ≤ TO < 6500 | 12 | 20.3 | 78.0 |
| 6500 ≤ TO < 7000 | 4 | 6.8 | 84.7 |
| 7000 ≤ TO < 7500 | 6 | 10.2 | 94.9 |
| 7500 ≤ TO < 8000 | 1 | 1.7 | 96.6 |
| 8000 + | 2 | 3.4 | 100.0 |
| REPORTED: | 59 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 59 | | |

## TABLE 20

### PERCENT OF MACHINE IDLE TIME FOR: COATERS

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 0 | 0.0 | 0.0 |
| 5 - 9 | 2 | 3.4 | 3.4 |
| 10 - 14 | 15 | 25.4 | 28.8 |
| 15 - 19 | 9 | 15.3 | 44.1 |
| 20 - 24 | 11 | 18.6 | 62.7 |
| 25 - 29 | 2 | 3.4 | 66.1 |
| 30 - 34 | 4 | 6.8 | 72.9 |
| 35 - 39 | 7 | 11.9 | 84.7 |
| 40 + | 9 | 15.3 | 100.0 |
| REPORTED: | 59 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 59 | | |

## TABLE 21

### MINIMUM STACK TEMPERATURE FOR: COATERS

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 5 | 10.2 | 10.2 |
| 100 ≤ TO < 200 | 31 | 63.3 | 73.5 |
| 200 ≤ TO < 300 | 11 | 22.4 | 95.9 |
| 300 ≤ TO < 400 | 0 | 0.0 | 95.9 |
| 400 ≤ TO < 500 | 1 | 2.0 | 98.0 |
| 500 ≤ TO < 1000 | 0 | 0.0 | 98.0 |
| 1000 + | 1 | 2.0 | 100.0 |
| REPORTED: | 49 | | |
| NOT REPORTED | 10 | 16.9 | |
| TOTAL: | 59 | | |

## TABLE 22

### VOLUME OF EXHAUST AIR FOR: COATERS

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 12 | 26.7 | 26.7 |
| 5000 ≤ TO < 10000 | 8 | 17.8 | 44.4 |
| 10000 ≤ TO < 15000 | 11 | 24.4 | 68.9 |
| 15000 ≤ TO < 20000 | 5 | 11.1 | 80.0 |
| 20000 ≤ TO < 25000 | 1 | 2.2 | 82.2 |
| 25000 ≤ TO < 30000 | 2 | 4.4 | 86.7 |
| 30000 ≤ TO < 35000 | 1 | 2.2 | 88.9 |
| 35000 ≤ TO < 40000 | 0 | 0.0 | 88.9 |
| 40000 + | 5 | 11.1 | 100.0 |
| REPORTED: | 45 | | |
| NOT REPORTED | 14 | 23.7 | |
| TOTAL: | 59 | | |

## TABLE 23

### AGE OF EQUIPMENT FOR: COATERS

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 6 | 10.2 | 10.2 |
| 5 - 9 | 14 | 23.7 | 33.9 |
| 10 - 14 | 19 | 32.2 | 66.1 |
| 15 + | 20 | 33.9 | 100.0 |
| REPORTED: | 59 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 59 | | |

## TABLE 24

### SCHEDULED PRODUCTION HOURS FOR: LAMINATORS

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 7 | 8 | 8.0 | |
| 1000 ≤ TO < 1500 | 3 | 3.4 | 11.4 |
| 1500 ≤ TO < 2000 | 3 | 3.4 | 14.8 |
| 2000 ≤ TO < 2500 | 7 | 8.0 | 22.7 |
| 2500 ≤ TO < 3000 | 3 | 3.4 | 26.1 |
| 3000 ≤ TO < 3500 | 8 | 9.1 | 35.2 |
| 3500 ≤ TO < 4000 | 4 | 4.5 | 39.8 |
| 4000 ≤ TO < 4500 | 7 | 8.0 | 47.7 |
| 4500 ≤ TO < 5000 | 6 | 6.8 | 54.5 |
| 5000 ≤ TO < 5500 | 10 | 11.4 | 65.9 |
| 5500 ≤ TO < 6000 | 13 | 14.8 | 80.7 |
| 6000 ≤ TO < 6500 | 4 | 4.5 | 85.2 |
| 6500 ≤ TO < 7000 | 1 | 1.1 | 86.4 |
| 7000 ≤ TO < 7500 | 7 | 8.0 | 94.3 |
| 7500 ≤ TO < 8000 | 1 | 1.1 | 95.5 |
| 8000 + | 4 | 4.5 | 100.0 |
| REPORTED: | 88 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 88 | | |

## TABLE 25

### PERCENT OF MACHINE IDLE TIME FOR: LAMINATORS

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 0 | 0.0 | 0.0 |
| 5 - 9 | 6 | 6.8 | 6.8 |
| 10 - 14 | 13 | 14.8 | 21.6 |
| 15 - 19 | 11 | 12.5 | 34.1 |
| 20 - 24 | 2 | 2.3 | 36.4 |
| 25 - 29 | 9 | 10.2 | 46.6 |
| 30 - 34 | 11 | 12.5 | 59.1 |
| 35 - 39 | 3 | 3.4 | 62.5 |
| 40 + | 33 | 37.5 | 100.0 |
| REPORTED: | 88 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 88 | | |

## TABLE 26

### MINIMUM STACK TEMPERATURE FOR: LAMINATORS

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 6 | 9.1 | 9.1 |
| 100 ≤ TO < 200 | 34 | 51.5 | 60.6 |
| 200 ≤ TO < 300 | 12 | 18.2 | 78.8 |
| 300 ≤ TO < 400 | 10 | 15.2 | 93.9 |
| 400 ≤ TO < 500 | 1 | 1.5 | 95.5 |
| 500 ≤ TO < 1000 | 3 | 4.5 | 100.0 |
| REPORTED: | 66 | | |
| NOT REPORTED | 22 | 25.0 | |
| TOTAL: | 88 | | |

## TABLE 27

### VOLUME OF EXHAUST AIR FOR: LAMINATORS

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 20 | 33.9 | 33.9 |
| 5000 ≤ TO < 10000 | 16 | 27.1 | 61.0 |
| 10000 ≤ TO < 15000 | 18 | 30.5 | 91.5 |
| 15000 ≤ TO < 20000 | 1 | 1.7 | 93.2 |
| 20000 ≤ TO < 25000 | 2 | 3.4 | 96.6 |
| 25000 ≤ TO < 30000 | 0 | 0.0 | 96.6 |
| 30000 ≤ TO < 35000 | 1 | 1.7 | 98.3 |
| 35000 ≤ TO < 40000 | 1 | 1.7 | 100.0 |
| REPORTED: | 59 | | |
| NOT REPORTED | 29 | 33.0 | |
| TOTAL: | 88 | | |

## TABLE 28

### AGE OF EQUIPMENT FOR: LAMINATORS

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 5 | 5.7 | 5.7 |
| 5 - 9 | 17 | 19.5 | 25.3 |
| 10 - 14 | 17 | 19.5 | 44.8 |
| 15 + | 48 | 55.2 | 100.0 |
| REPORTED: | 87 | | |
| NOT REPORTED | 1 | 1.1 | |
| TOTAL: | 88 | | |

## TABLE 29

### SCHEDULED PRODUCTION HOURS FOR: PRIMING STATIONS

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 0 | 0 | 0.0 | |
| 1000 ≤ TO < 1500 | 0 | 0.0 | 0.0 |
| 1500 ≤ TO < 2000 | 0 | 0.0 | 0.0 |
| 2000 ≤ TO < 2500 | 1 | 2.1 | 2.1 |
| 2500 ≤ TO < 3000 | 3 | 6.4 | 8.5 |
| 3000 ≤ TO < 3500 | 3 | 6.4 | 14.9 |
| 3500 ≤ TO < 4000 | 0 | 0.0 | 14.9 |
| 4000 ≤ TO < 4500 | 5 | 10.6 | 25.5 |
| 4500 ≤ TO < 5000 | 3 | 6.4 | 31.9 |
| 5000 ≤ TO < 5500 | 3 | 6.4 | 38.3 |
| 5500 ≤ TO < 6000 | 8 | 17.0 | 55.3 |
| 6000 ≤ TO < 6500 | 12 | 25.5 | 80.9 |
| 6500 ≤ TO < 7000 | 1 | 2.1 | 83.0 |
| 7000 ≤ TO < 7500 | 5 | 10.6 | 93.6 |
| 7500 ≤ TO < 8000 | 3 | 6.4 | 100.0 |
| REPORTED: | 47 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 47 | | |

## TABLE 30

### PERCENT OF MACHINE IDLE TIME FOR: PRIMING STATIONS

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 1 | 2.1 | 2.1 |
| 5 - 9 | 0 | 0.0 | 2.1 |
| 10 - 14 | 1 | 2.1 | 4.3 |
| 15 - 19 | 3 | 6.4 | 10.6 |
| 20 - 24 | 13 | 27.7 | 38.3 |
| 25 - 29 | 7 | 14.9 | 53.2 |
| 30 - 34 | 10 | 21.3 | 74.5 |
| 35 - 39 | 3 | 6.4 | 80.9 |
| 40 + | 9 | 19.1 | 100.0 |
| REPORTED: | 47 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 47 | | |

## TABLE 31

### MINIMUM STACK TEMPERATURE FOR: PRIMING STATIONS

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 3 | 9.4 | 9.4 |
| 100 ≤ TO < 200 | 20 | 62.5 | 71.9 |
| 200 ≤ TO < 300 | 8 | 25.0 | 96.9 |
| 300 ≤ TO < 400 | 0 | 0.0 | 96.9 |
| 400 ≤ TO < 500 | 0 | 0.0 | 96.9 |
| 500 ≤ TO < 1000 | 1 | 3.1 | 100.0 |
| REPORTED: | 32 | | |
| NOT REPORTED | 15 | 31.9 | |
| TOTAL: | 47 | | |

## TABLE 32

### VOLUME OF EXHAUST AIR FOR: PRIMING STATIONS

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 6 | 17.6 | 17.6 |
| 5000 ≤ TO < 10000 | 12 | 35.3 | 52.9 |
| 10000 ≤ TO < 15000 | 8 | 23.5 | 76.5 |
| 15000 ≤ TO < 20000 | 4 | 11.8 | 88.2 |
| 20000 ≤ TO < 25000 | 0 | 0.0 | 88.2 |
| 25000 ≤ TO < 30000 | 1 | 2.9 | 91.2 |
| 30000 ≤ TO < 35000 | 0 | 0.0 | 91.2 |
| 35000 ≤ TO < 40000 | 1 | 2.9 | 94.1 |
| 40000 + | 2 | 5.9 | 100.0 |
| REPORTED: | 34 | | |
| NOT REPORTED | 13 | 27.7 | |
| TOTAL: | 47 | | |

## TABLE 33

### AGE OF EQUIPMENT FOR: PRIMING STATIONS

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 1 | 2.2 | 2.2 |
| 5 - 9 | 8 | 17.4 | 19.6 |
| 10 - 14 | 15 | 32.6 | 52.2 |
| 15 + | 22 | 47.8 | 100.0 |
| REPORTED: | 46 | | |
| NOT REPORTED | 1 | 2.1 | |
| TOTAL: | 47 | | |

## TABLE 34

SCHEDULED PRODUCTION HOURS FOR: PRESS + COATER

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 2 | 15 | 15.4 | |
| 1000 ≤ TO < 1500 | 0 | 0.0 | 15.4 |
| 1500 ≤ TO < 2000 | 0 | 0.0 | 15.4 |
| 2000 ≤ TO < 2500 | 0 | 0.0 | 15.4 |
| 2500 ≤ TO < 3000 | 0 | 0.0 | 15.4 |
| 3000 ≤ TO < 3500 | 0 | 0.0 | 15.4 |
| 3500 ≤ TO < 4000 | 0 | 0.0 | 15.4 |
| 4000 ≤ TO < 4500 | 0 | 0.0 | 15.4 |
| 4500 ≤ TO < 5000 | 0 | 0.0 | 15.4 |
| 5000 ≤ TO < 5500 | 0 | 0.0 | 15.4 |
| 5500 ≤ TO < 6000 | 1 | 7.7 | 23.1 |
| 6000 ≤ TO < 6500 | 10 | 76.9 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 35

PERCENT OF MACHINE IDLE TIME FOR: PRESS + COATER

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 1 | 7.7 | 7.7 |
| 5 - 9 | 0 | 0.0 | 7.7 |
| 10 - 14 | 2 | 15.4 | 23.1 |
| 15 - 19 | 0 | 0.0 | 23.1 |
| 20 - 24 | 2 | 15.4 | 38.5 |
| 25 - 29 | 2 | 15.4 | 53.8 |
| 30 - 34 | 2 | 15.4 | 69.2 |
| 35 - 39 | 1 | 7.7 | 76.9 |
| 40 + | 3 | 23.1 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 36

### MINIMUM STACK TEMPERATURE FOR: PRESS + COATER

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 5 | 71.4 | 71.4 |
| 100 ≤ TO < 200 | 2 | 28.6 | 100.0 |
| REPORTED: | 7 | | |
| NOT REPORTED | 6 | 46.2 | |
| TOTAL: | 13 | | |

## TABLE 37

### VOLUME OF EXHAUST AIR FOR: PRESS + COATER

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 1 | 14.3 | 14.3 |
| 5000 ≤ TO < 10000 | 3 | 42.9 | 57.1 |
| 10000 ≤ TO < 15000 | 1 | 14.3 | 71.4 |
| 15000 ≤ TO < 20000 | 0 | 0.0 | 71.4 |
| 20000 ≤ TO < 25000 | 2 | 28.6 | 100.0 |
| REPORTED: | 7 | | |
| NOT REPORTED | 6 | 46.2 | |
| TOTAL: | 13 | | |

## TABLE 38

### AGE OF EQUIPMENT FOR: PRESS + COATER

| MACHINE AGE IN YEARS | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 2 | 15.4 | 15.4 |
| 5 - 9 | 2 | 15.4 | 30.8 |
| 10 - 14 | 3 | 23.1 | 53.8 |
| 15 + | 6 | 46.2 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 39

### SCHEDULED PRODUCTION HOURS FOR: COATER + LAMINATOR

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 1 | 2 | 1.7 | |
| 1000 ≤ TO < 1500 | 3 | 5.0 | 6.7 |
| 1500 ≤ TO < 2000 | 0 | 0.0 | 6.7 |
| 2000 ≤ TO < 2500 | 1 | 1.7 | 8.3 |
| 2500 ≤ TO < 3000 | 0 | 0.0 | 8.3 |
| 3000 ≤ TO < 3500 | 2 | 3.3 | 11.7 |
| 3500 ≤ TO < 4000 | 2 | 3.3 | 15.0 |
| 4000 ≤ TO < 4500 | 14 | 23.3 | 38.3 |
| 4500 ≤ TO < 5000 | 2 | 3.3 | 41.7 |
| 5000 ≤ TO < 5500 | 11 | 18.3 | 60.0 |
| 5500 ≤ TO < 6000 | 7 | 11.7 | 71.7 |
| 6000 ≤ TO < 6500 | 8 | 13.3 | 85.0 |
| 6500 ≤ TO < 7000 | 3 | 5.0 | 90.0 |
| 7000 ≤ TO < 7500 | 1 | 1.7 | 91.7 |
| 7500 ≤ TO < 8000 | 4 | 6.7 | 98.3 |
| 8000 + | 1 | 1.7 | 100.0 |
| REPORTED: | 60 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 60 | | |

## TABLE 40

### PERCENT OF MACHINE IDLE TIME FOR: COATER + LAMINATOR

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 1 | 1.7 | 1.7 |
| 5 - 9 | 6 | 10.0 | 11.7 |
| 10 - 14 | 10 | 16.7 | 28.3 |
| 15 - 19 | 8 | 13.3 | 41.7 |
| 20 - 24 | 1 | 1.7 | 43.3 |
| 25 - 29 | 3 | 5.0 | 48.3 |
| 30 - 34 | 10 | 16.7 | 65.0 |
| 35 - 39 | 9 | 15.0 | 80.0 |
| 40 + | 12 | 20.0 | 100.0 |
| REPORTED: | 60 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 60 | | |

## TABLE 41

MINIMUM STACK TEMPERATURE FOR: COATER + LAMINATOR

| MIN TEMP FROM ALL STACKS (o F) | NO. OF UNITS | o/o OF UNITS (KNOWN) | o/o CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 1 | 2.1 | 2.1 |
| 100 ≤ TO < 200 | 31 | 64.6 | 66.7 |
| 200 ≤ TO < 300 | 12 | 25.0 | 91.7 |
| 300 ≤ TO < 400 | 3 | 6.3 | 97.9 |
| 400 ≤ TO < 500 | 0 | 0.0 | 97.9 |
| 500 ≤ TO < 1000 | 1 | 2.1 | 100.0 |
| REPORTED: | 48 | | |
| NOT REPORTED | 12 | 20.0 | |
| TOTAL: | 60 | | |

## TABLE 42

VOLUME OF EXHAUST AIR FOR: COATER + LAMINATOR

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | o/o OF UNITS (KNOWN) | o/o CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 20 | 40.0 | 40.0 |
| 5000 ≤ TO < 10000 | 13 | 26.0 | 66.0 |
| 10000 ≤ TO < 15000 | 11 | 22.0 | 88.0 |
| 15000 ≤ TO < 20000 | 1 | 2.0 | 90.0 |
| 20000 ≤ TO < 25000 | 1 | 2.0 | 92.0 |
| 25000 ≤ TO < 30000 | 3 | 6.0 | 98.0 |
| 30000 ≤ TO < 35000 | 1 | 2.0 | 100.0 |
| REPORTED: | 50 | | |
| NOT REPORTED | 10 | 16.7 | |
| TOTAL: | 60 | | |

## TABLE 43

AGE OF EQUIPMENT FOR: COATER + LAMINATOR

| MACHINE AGE IN YEARS | NO. OF UNITS | o/o OF UNITS (KNOWN) | o/o CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 8 | 13.6 | 13.6 |
| 5 - 9 | 16 | 27.1 | 40.7 |
| 10 - 14 | 14 | 23.7 | 64.4 |
| 15 + | 21 | 35.6 | 100.0 |
| REPORTED: | 59 | | |
| NOT REPORTED | 1 | 1.7 | |
| TOTAL: | 60 | | |

## TABLE 44

### SCHEDULED PRODUCTION HOURS FOR: OTHER COMBINATIONS

| RANGE IN HOURS | NO. OF UNITS | •/• OF UNITS (KNOWN) | CUM •/• (KNOWN) |
|---|---|---|---|
| 1000 ≤ TO < 2 | 15 | 15.4 | |
| 1000 ≤ TO < 1500 | 1 | 7.7 | 23.1 |
| 1500 ≤ TO < 2000 | 0 | 0.0 | 23.1 |
| 2000 ≤ TO < 2500 | 0 | 0.0 | 23.1 |
| 2500 ≤ TO < 3000 | 0 | 0.0 | 23.1 |
| 3000 ≤ TO < 3500 | 0 | 0.0 | 23.1 |
| 3500 ≤ TO < 4000 | 2 | 15.4 | 38.5 |
| 4000 ≤ TO < 4500 | 0 | 0.0 | 38.5 |
| 4500 ≤ TO < 5000 | 0 | 0.0 | 38.5 |
| 5000 ≤ TO < 5500 | 0 | 0.0 | 38.5 |
| 5500 ≤ TO < 6000 | 2 | 15.4 | 53.8 |
| 6000 ≤ TO < 6500 | 3 | 23.1 | 76.9 |
| 6500 ≤ TO < 7000 | 3 | 23.1 | 100.0 |
| 7000 ≤ TO < 7500 | 0 | 0.0 | 100.0 |
| 7500 ≤ TO < 8000 | 0 | 0.0 | 100.0 |
| 8000 + | 0 | 0.0 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 45

### PERCENT OF MACHINE IDLE TIME FOR: OTHER COMBINATIONS

| •/• OF SCHED PROD TIME | NO. OF UNITS | •/• OF UNITS (KNOWN) | •/• CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 0 | 0.0 | 0.0 |
| 5 - 9 | 0 | 0.0 | 0.0 |
| 10 - 14 | 1 | 7.7 | 7.7 |
| 15 - 19 | 2 | 15.4 | 23.1 |
| 20 - 24 | 2 | 15.4 | 38.5 |
| 25 - 29 | 0 | 0.0 | 38.5 |
| 30 - 34 | 4 | 30.8 | 69.2 |
| 35 - 39 | 2 | 15.4 | 84.6 |
| 40 + | 2 | 15.4 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 46

### MINIMUM STACK TEMPERATURE FOR: OTHER COMBINATIONS

| MIN TEMP FROM ALL STACKS (° F) | NO. OF UNITS | °/° OF UNITS (KNOWN) | °/° CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 100 | 0 | 0.0 | 0.0 |
| 100 ≤ TO < 200 | 2 | 28.6 | 28.6 |
| 200 ≤ TO < 300 | 5 | 71.4 | 100.0 |
| REPORTED: | 7 | | |
| NOT REPORTED | 6 | 46.2 | |
| TOTAL: | 13 | | |

## TABLE 47

### VOLUME OF EXHAUST AIR FOR: OTHER COMBINATIONS

| TOTAL VOLUME ALL STACKS (SCFM) | NO. OF UNITS | °/° OF UNITS (KNOWN) | °/° CUM (KNOWN) |
|---|---|---|---|
| 0 ≤ TO < 5000 | 1 | 14.3 | 14.3 |
| 5000 ≤ TO < 10000 | 3 | 42.9 | 57.1 |
| 10000 ≤ TO < 15000 | 2 | 28.6 | 85.7 |
| 15000 ≤ TO < 20000 | 0 | 0.0 | 85.7 |
| 20000 ≤ TO < 25000 | 0 | 0.0 | 85.7 |
| 25000 ≤ TO < 30000 | 0 | 0.0 | 85.7 |
| 30000 ≤ TO < 35000 | 0 | 0.0 | 85.7 |
| 35000 ≤ TO < 40000 | 0 | 0.0 | 85.7 |
| 40000 + | 1 | 14.3 | 100.0 |
| REPORTED: | 7 | | |
| NOT REPORTED | 6 | 46.2 | |
| TOTAL: | 13 | | |

## TABLE 48

### AGE OF EQUIPMENT FOR: OTHER COMBINATIONS

| MACHINE AGE IN YEARS | NO. OF UNITS | °/° OF UNITS (KNOWN) | °/° CUM (KNOWN) |
|---|---|---|---|
| 0 - 4 | 1 | 7.7 | 7.7 |
| 5 - 9 | 2 | 15.4 | 23.1 |
| 10 - 14 | 4 | 30.8 | 53.9 |
| 15 + | 6 | 46.2 | 100.0 |
| REPORTED: | 13 | | |
| NOT REPORTED | 0 | 0.0 | |
| TOTAL: | 13 | | |

## TABLE 49

## EXHAUST DATA BY MACHINE TYPE

| | TOTAL MACHINES | MEDIAN LBS. PER HOUR EXHAUST | MEDIAN PPM | MEDIAN LBS. PER YEAR | AVERAGE NUMBER OF STACKS |
|---|---|---|---|---|---|
| Flexo-Presses (Table 50) | 299 | 19 | 350 | 59,586 | 1.6 |
| Gravure-Presses (Table 51) | 143 | 41 | 140 | 126,720 | 2.5 |
| Coaters (Table 52) | 57 | 36 | 400 | 150,660 | 1.8 |
| Laminators (Table 53) | 79 | 18 | 249 | 50,400 | 1.5 |
| Priming Stations (Table 54) | 47 | 17 | 166 | 67,284 | 2.1 |
| Press and Coater (Table 55) | 13 | 25 | 278 | 56,250 | 1.6 |
| Coater and Laminator (Table 56) | 60 | 23 | 195 | 73,784 | 1.5 |
| Other Combinations (Table 57) | 13 | 37 | 763 | 100,548 | 1.8 |

# TABLE 50

## EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 928 | 1 | ND | 2 | 12038 | 1 |
| 928 | 2 | ND | 2 | 12038 | 1 |
| 928 | 3 | ND | <1 | 2006 | 1 |
| 928 | 4 | ND | 2 | 7539 | 1 |
| 928 | 5 | ND | 3 | 15504 | 1 |
| 928 | 6 | ND | 6 | 44870 | 1 |
| 614 | 1 | ND | 4 | 1330 | 1 |
| 18 | 1 | ND | 9 | 36504 | 1 |
| 18 | 2 | ND | 5 | 5569 | 3 |
| 18 | 3 | ND | 3 | 3342 | 2 |
| 18 | 4 | ND | 16 | 93366 | 1 |
| 718 | 1 | ND | 14 | 40920 | 4 |
| 718 | 2 | ND | 28 | 76384 | 5 |
| 904 | 1 | 556 | 9 | 14615 | 1 |
| 904 | 2 | 181 | 3 | 1396 | 1 |
| 904 | 3 | 556 | 9 | 14615 | 1 |
| 904 | 4 | 556 | 9 | 14615 | 1 |
| 904 | 5 | 556 | 9 | 14529 | 1 |
| 283 | 1 | 77 | 5 | 8982 | 2 |
| 283 | 2 | 130 | 3 | 6362 | 2 |
| 54 | 1 | ND | <1 | 6174 | 0 |
| 54 | 2 | ND | 5 | 37046 | 1 |
| 54 | 3 | ND | 2 | 12349 | 0 |
| 54 | 4 | ND | 2 | 12349 | 0 |
| 54 | 5 | ND | 10 | 74092 | 1 |
| 54 | 6 | ND | 10 | 74092 | 1 |
| 54 | 7 | ND | 9 | 67918 | 1 |
| 54 | 8 | ND | 9 | 61743 | 1 |
| 54 | 9 | ND | 10 | 74092 | 1 |
| 54 | 10 | ND | 5 | 37046 | 1 |
| 54 | 11 | ND | 10 | 74092 | 1 |
| 54 | 12 | ND | <1 | 6174 | 0 |
| 54 | 13 | ND | 10 | 74092 | 1 |
| 148 | 1 | ND | 2 | 5904 | 1 |
| 148 | 2 | ND | <1 | 269 | 0 |
| 148 | 3 | ND | <1 | 269 | 0 |
| 148 | 4 | ND | <1 | 269 | 0 |
| 148 | 5 | ND | <1 | 269 | 0 |
| 148 | 6 | ND | <1 | 269 | 0 |
| 148 | 7 | ND | <1 | 269 | 0 |
| 148 | 8 | ND | 2 | 4320 | 2 |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 674 | 1 | ND | 5 | 7026 | 1 |
| 674 | 2 | ND | 5 | 3888 | 2 |
| 674 | 3 | ND | 23 | 78284 | 1 |
| 674 | 4 | ND | 25 | 563[illegible]1 | 1 |
| 674 | 5 | ND | 3 | 7228 | 1 |
| 674 | 6 | ND | 3 | 8673 | 1 |
| 674 | 7 | ND | 3 | 7313 | 1 |
| 674 | 8 | ND | 3 | 684 | 1 |
| 447 | 1 | ND | <1 | 29 | 0 |
| 336 | 1 | 0 | <1 | 2278 | 1 |
| 651 | 1 | ND | 4 | 4032 | 1 |
| 581 | 1 | 1053 | 45 | 151733 | 1 |
| 581 | 2 | 1559 | 138 | 470118 | 2 |
| 581 | 3 | 1559 | 138 | 470118 | 2 |
| 581 | 4 | 1559 | 138 | 470118 | 2 |
| 581 | 5 | 1559 | 138 | 470118 | 2 |
| 581 | 6 | 1559 | 138 | 470118 | 2 |
| 581 | 8 | 1559 | 138 | 470118 | 2 |
| 581 | 9 | 806 | 155 | 619192 | 3 |
| 702 | 1 | 1559 | 138 | 470118 | 2 |
| 702 | 2 | 1559 | 138 | 470118 | 2 |
| 1126 | 1 | 586 | 23 | 13500 | 1 |
| 1126 | 2 | 670 | 31 | 108000 | 1 |
| 1126 | 3 | 911 | 35 | 31500 | 1 |
| 1126 | 4 | 242 | 37 | 139500 | 1 |
| 1126 | 5 | 610 | 47 | 157500 | 1 |
| 478 | 3 | ND | 2 | 7809 | 1 |
| 478 | 4 | ND | 3 | 11860 | 2 |
| 478 | 5 | ND | 6 | 27615 | 2 |
| 478 | 6 | ND | 8 | 40360 | 2 |
| 478 | 7 | ND | 7 | 34615 | 2 |
| 478 | 8 | ND | 8 | 39882 | 3 |
| 888 | 1 | 682 | 33 | 48048 | 1 |
| 11 | 1 | ND | 25 | 22097 | * |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 103 | 1 | 217 | 8 | 10700 | 1 |
| 103 | 2 | 321 | 25 | 61437 | 2 |
| 103 | 3 | 860 | 45 | 166141 | 1 |
| 103 | 4 | 378 | 29 | 77215 | 2 |
| 103 | 5 | 409 | 42 | 112731 | 2 |
| 844 | 2 | ND | 59 | 237952 | 3 |
| 844 | 3 | ND | 59 | 237952 | 3 |
| 844 | 4 | ND | 59 | 237952 | 4 |
| 844 | 5 | ND | 59 | 237952 | 2 |
| 844 | 6 | ND | 59 | 237952 | 3 |
| 715 | 2 | 636 | 40 | 132309 | 1 |
| 715 | 3 | 562 | 40 | 66373 | 1 |
| 715 | 4 | 768 | 44 | 2139 | 1 |
| 715 | 5 | 477 | 40 | 134904 | 1 |
| 715 | 6 | 299 | 40 | 139666 | 1 |
| 89 | 1 | ND | 10 | 20169 | 2 |
| 89 | 2 | ND | 17 | 35857 | 2 |
| 727 | 1 | 1182 | 102 | 294422 | 3 |
| 727 | 2 | 1359 | 76 | 136322 | 3 |
| 727 | 3 | 596 | 25 | 7287 | 1 |
| 727 | 4 | 1444 | 26 | 16422 | 1 |
| 425 | 1 | 393 | 38 | 112480 | 1 |
| 425 | 2 | 427 | 38 | 182400 | 1 |
| 425 | 3 | 399 | 38 | 79040 | 1 |
| 425 | 4 | 399 | 38 | 133760 | 1 |
| 425 | 5 | 467 | 38 | 139840 | 1 |
| 425 | 6 | 243 | 38 | 136800 | 2 |
| 984 | 1 | 156 | 36 | 103680 | 3 |
| 984 | 2 | 391 | 36 | 93312 | 2 |
| 984 | 3 | 268 | 37 | 95904 | 1 |
| 984 | 4 | 535 | 37 | 79920 | 1 |
| 984 | 5 | 391 | 36 | 80352 | 2 |
| 521 | 1 | ND | 6 | 18270 | 1 |
| 521 | 2 | ND | 6 | 13865 | 1 |
| 302 | 1 | 552 | 21 | 23728 | 1 |
| 302 | 2 | 552 | 21 | 2536 | 1 |
| 302 | 3 | 439 | 32 | 59586 | 1 |
| 302 | 4 | 437 | 21 | 69012 | 1 |
| 302 | 5 | 639 | 21 | 71547 | 1 |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 233 | 1 | 250 | 11 | 59071 | 2 |
| 233 | 2 | 288 | 19 | 97558 | 2 |
| 233 | 3 | 350 | 12 | 15977 | 1 |
| 233 | 4 | 225 | 37 | 141692 | 2 |
| 449 | 2 | 875 | 48 | 210172 | 1 |
| 449 | 3 | 875 | 48 | 201820 | 1 |
| 449 | 4 | 875 | 48 | 173804 | 1 |
| 449 | 5 | 1157 | 68 | 231281 | 1 |
| 449 | 6 | 1594 | 28 | 8361 | 1 |
| 449 | 7 | 875 | 48 | 176732 | 1 |
| 449 | 8 | 875 | 48 | 171541 | 1 |
| 449 | 9 | 875 | 48 | 219692 | 1 |
| 1027 | 1 | ND | <1 | 10 | 0 |
| 632 | 1 | 160 | 7 | 25037 | 2 |
| 632 | 2 | 314 | 4 | 12252 | 1 |
| 632 | 3 | 92 | 7 | 25570 | 2 |
| 676 | 1 | 113 | 11 | 33516 | 1 |
| 676 | 2 | 66 | 11 | 33516 | 2 |
| 676 | 3 | 149 | 11 | 33516 | 1 |
| 676 | 4 | 149 | 11 | 33516 | 1 |
| 323 | 1 | 0 | 19 | 68250 | 1 |
| 323 | 2 | 0 | 19 | 68250 | 1 |
| 323 | 3 | 0 | 19 | 68250 | 1 |
| 786 | 1 | 142 | 16 | 85504 | 1 |
| 786 | 2 | 142 | 16 | 73710 | 1 |
| 786 | 3 | 129 | 10 | 38728 | 1 |
| 246 | 1 | 239 | 33 | 116424 | 2 |
| 246 | 2 | 239 | 33 | 116424 | 2 |
| 246 | 3 | 239 | 33 | 99792 | 2 |
| 246 | 4 | 239 | 33 | 116424 | 2 |
| 246 | 5 | 239 | 33 | 109296 | 2 |
| 246 | 6 | 239 | 33 | 133056 | 2 |
| 508 | 8 | 636 | 38 | 29038 | 2 |
| 197 | 1 | 423 | 39 | 171600 | 2 |
| 197 | 2 | 423 | 39 | 171600 | 2 |
| 197 | 3 | 423 | 39 | 171600 | 2 |
| 197 | 4 | 423 | 39 | 171600 | 2 |
| 197 | 5 | 423 | 39 | 171600 | 2 |
| 197 | 6 | 423 | 39 | 171600 | 2 |
| 197 | 7 | 423 | 39 | 171600 | 2 |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 776 | 1 | ND | 14 | 26208 | 1 |
| 1026 | 1 | 2916 | 67 | 75398 | 1 |
| 1026 | 2 | 1562 | 48 | 58752 | 1 |
| 304 | 1 | 1102 | 110 | 286000 | 1 |
| 8. | 1 | ND | <1 | 67 | 0 |
| 8 | 2 | ND | <1 | 67 | 0 |
| 8 | 3 | ND | <1 | 83 | 0 |
| 8 | 4 | ND | <1 | 42 | 0 |
| 46 | 1 | ND | 8 | 46080 | 1 |
| 46 | 2 | ND | 26 | 147456 | 2 |
| 46 | 3 | ND | 15 | 88474 | 2 |
| 290 | 1 | 132 | 4 | 4050 | 1 |
| 290 | 2 | 278 | 12 | 36000 | 2 |
| 290 | 3 | 142 | 12 | 36000 | 3 |
| 290 | 4 | 193 | 21 | 63000 | 2 |
| 318 | 1 | ND | 1 | 520 | 1 |
| 355 | 3 | ND | 17 | 53240 | 2 |
| 355 | 7 | ND | 23 | 80855 | 2 |
| 355 | 8 | ND | 17 | 58399 | 2 |
| 456 | 4 | 1351 | 55 | 36564 | 2 |
| 501 | 1 | 23 | <1 | 3150 | 1 |
| 512 | 1 | 598 | 56 | 314496 | 2 |
| 512 | 2 | 461 | 56 | 314496 | 2 |
| 512 | 7 | 1823 | 56 | 314496 | 2 |
| 553 | 3 | ND | 11 | 15490 | 1 |
| 553 | 4 | ND | 11 | 15490 | 1 |
| 553 | 5 | ND | 11 | 15718 | 1 |
| 553 | 6 | ND | 11 | 15946 | 1 |
| 553 | 7 | ND | 11 | 15718 | 1 |
| 653 | 1 | ND | 3 | 7683 | 1 |
| 653 | 2 | ND | 4 | 10119 | 1 |
| 653 | 3 | ND | 3 | 11206 | 3 |
| 653 | 4 | ND | 4 | 11925 | 3 |

TABLE 50 (Continued)

EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 745 | 1 | ND | <1 | 677 | 1 |
| 784 | 3 | 160 | 14 | 59500 | 2 |
| 784 | 4 | 162 | 20 | 83300 | 2 |
| 784 | 5 | 132 | 20 | 83300 | 2 |
| 784 | 6 | 162 | 22 | 94350 | 2 |
| 878 | 1 | 58 | 21 | 102900 | 2 |
| 878 | 2 | 67 | 23 | 111475 | 2 |
| 878 | 3 | 152 | 21 | 102900 | 1 |
| 878 | 4 | 62 | 23 | 111475 | 2 |
| 878 | 5 | 90 | 20 | 97183 | 2 |
| 878 | 6 | 42 | 23 | 111475 | 2 |
| 878 | 7 | 53 | 23 | 111475 | 2 |
| 878 | 8 | 97 | 23 | 114333 | 1 |
| 909 | 1 | 461 | 25 | 65967 | 1 |
| 909 | 2 | 80 | 5 | 10149 | 2 |
| 909 | 3 | 80 | 5 | 10149 | 2 |
| 909 | 4 | 135 | 5 | 10149 | 1 |
| 909 | 5 | 135 | 5 | 10149 | 1 |
| 929 | 3 | 87 | 40 | 198745 | 2 |
| 964 | 1 | 17 | 1 | 4774 | 2 |
| 964 | 2 | 17 | 1 | 4774 | 2 |
| 964 | 3 | 17 | 1 | 4774 | 2 |
| 1030 | 1 | ND | 2 | 4368 | 3 |
| 1030 | 2 | ND | 2 | 4368 | 3 |
| 1030 | 3 | ND | <1 | 312 | 1 |
| 1030 | 4 | ND | 2 | 4368 | 3 |
| 1030 | 5 | ND | 2 | 4368 | 3 |
| 1030 | 6 | ND | 2 | 4368 | 3 |
| 1030 | 7 | ND | 5 | 10920 | 3 |
| 1099 | 3 | 136 | 13 | 12000 | 1 |
| 1110 | 2 | 186 | 21 | 40[illegible]8 | 1 |
| 1110 | 3 | 226 | 21 | 1139[illegible]4 | 2 |
| 1124 | 1 | ND | <1 | 1404 | 2 |
| 1124 | 2 | ND | <1 | 608 | 2 |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 32 | 2 | ND | 19531 | 35156250 | 1 |
| 32 | 7 | ND | 34 | 39690 | 1 |
| 45 | 3 | 376 | 38 | 97377 | 2 |
| 382 | 7 | ND | 52 | 155925 | 3 |
| 476 | 1 | ND | 49 | 89376 | 2 |
| 628 | 1 | 78 | 6 | 12480 | 2 |
| 628 | 2 | 78 | 5 | 18432 | 2 |
| 628 | 3 | 87 | 2 | 7680 | 1 |
| 799 | 1 | 378 | 23 | 25575 | 1 |
| 799 | 2 | 169 | 44 | 141485 | 1 |
| 799 | 3 | 123 | 32 | 102956 | 1 |
| 835 | 1 | 108 | 2 | 4420 | 4 |
| 953 | 1 | 697 | 30 | 131400 | 1 |
| 953 | 2 | 394 | 46 | 207000 | 1 |
| 953 | 3 | 675 | 23 | 86184 | 1 |
| 953 | 4 | 620 | 32 | 143856 | 1 |
| 953 | 5 | 359 | 34 | 157248 | 1 |
| 953 | 8 | 492 | 35 | 152424 | 1 |
| 953 | 9 | 553 | 35 | 154512 | 1 |
| 953 | 10 | 539 | 35 | 148248 | 1 |
| 953 | 11 | 357 | 32 | 151632 | 1 |
| 953 | 14 | 12 | 2 | 7200 | 1 |
| 953 | 15 | 12 | 2 | 7200 | 1 |
| 953 | 16 | 17 | 1 | 5400 | 1 |
| 953 | 17 | 17 | 1 | 5400 | 1 |
| 1017 | 1 | ND | 53 | 159996 | 2 |
| 1017 | 2 | ND | 53 | 95998 | 1 |
| 1017 | 3 | ND | 53 | 18133 | 1 |
| 1017 | 4 | ND | 53 | 16000 | 1 |
| 1017 | 5 | ND | 53 | 159996 | 1 |
| 13 | 1 | 57 | 5 | 21322 | 1 |
| 13 | 2 | 178 | 8 | 33415 | 1 |
| 13 | 3 | 59 | 5 | 17745 | 1 |
| 13 | 4 | 151 | 7 | 27183 | 1 |
| 13 | 5 | 119 | 16 | 64178 | 2 |

## TABLE 50 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 133 | 1 | 231 | 25 | 78543 | 2 |
| 133 | 2 | ND | 13 | 42896 | 1 |
| 155 | 1 | ND | <1 | 311 | 0 |
| 155 | 2 | ND | <1 | 311 | 0 |
| 155 | 3 | ND | <1 | 311 | 0 |
| 155 | 4 | ND | <1 | 55 | 1 |
| 184 | 1 | 233 | 16 | 54400 | 2 |
| 184 | 2 | 1577 | 56 | 190400 | 2 |
| 184 | 3 | 1577 | 56 | 190400 | 2 |
| 184 | 4 | 1013 | 56 | 190400 | 2 |
| 263 | 12 | 454 | 30 | 128772 | 2 |
| 263 | 13 | 244 | 18 | 66679 | 4 |
| 263 | 14 | 403 | 19 | 59835 | 2 |
| 263 | 15 | 188 | 23 | 74088 | 2 |
| 263 | 16 | 799 | 27 | 114307 | 4 |
| 328 | 1 | ND | 14 | 12755 | 0 |
| 334 | 1 | 79 | 10 | 47845 | 1 |
| 334 | 2 | 75 | 9 | 36036 | 2 |
| 334 | 3 | 92 | 11 | 44226 | 2 |
| 334 | 4 | 96 | 13 | 51597 | 3 |
| 334 | 5 | 228 | 14 | 100800 | 1 |
| 334 | 6 | 407 | 50 | 97500 | 1 |
| 456 | 4 | 320 | 13 | 14175 | 2 |
| 467 | 1 | 367 | 25 | 140000 | 1 |
| 467 | 2 | 367 | 25 | 140000 | 1 |
| 547 | 4 | 37 | <1 | 1834 | 2 |
| 585 | 1 | ND | 47 | 156083 | 2 |
| 585 | 2 | ND | 47 | 156083 | 2 |
| 724 | 1 | ND | 5 | 2199 | 1 |
| 758 | 1 | ND | 3 | 10794 | 1 |

TABLE 50 (Continued)

EXHAUST DATA BY MACHINE ** PRESSES - FLEXO

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 770 | 1 | 92 | 9 | 30319 | 2 |
| 770 | 2 | 88 | 9 | 22050 | 2 |
| 770 | 4 | 99 | 11 | 40950 | 3 |
| 770 | 5 | 131 | 10 | 46448 | 3 |
| 884 | 4 | ND | 5 | 34082 | 1 |
| 884 | 5 | ND | 19 | 136326 | 2 |
| 884 | 6 | ND | 40 | 289694 | 2 |
| 884 | 7 | ND | 64 | 465214 | 3 |
| 910 | 1 | ND | 35 | 70000 | 1 |
| 1056 | 1 | 87 | 15 | 78730 | 3 |
| 1056 | 2 | 101 | 13 | 54880 | 2 |
| 1056 | 3 | 147 | 12 | 46637 | 2 |
| 1129 | 1 | 488 | 2 | 16639 | 4 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 87 | 299 | 350 | 19 | 59586 | 1.6 |

# TABLE 51

## EXHAUST DATA BY MACHINE ** PRESSES - GRAVURE

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 88 | 1 | 12206 | 375 | 698280 | 1 |
| 88 | 2 | 10986 | 338 | 628452 | 1 |
| 88 | 3 | 2441 | 375 | 698280 | 1 |
| 88 | 5 | 40 | 16 | 94539 | 1 |
| 88 | 6 | 89 | 19 | 173 | 1 |
| 88 | 7 | 38 | 16 | 17 | 2 |
| 88 | 8 | 100 | 22 | 86 | 1 |
| 88 | 9 | 152 | 16 | 4198 | 1 |
| 581 | 10 | 434 | 140 | 329280 | 2 |
| 1038 | 1 | 40254 | 151 | 474426 | 3 |
| 1038 | 2 | 422 | 151 | 306472 | 2 |
| 1038 | 3 | 120 | 15 | 44958 | 2 |
| 1038 | 4 | 1356 | 128 | 75812 | 3 |
| 865 | 5 | 534 | 178 | 235138 | 2 |
| 1079 | 1 | ND | 16 | 30620 | 3 |
| 715 | 1 | 114 | 26 | 96703 | 4 |
| 425 | 7 | 798 | 103 | 173040 | 1 |
| 425 | 8 | 882 | 103 | 403760 | 1 |
| 425 | 9 | 838 | 103 | 533540 | 1 |
| 425 | 10 | 789 | 103 | 401700 | 1 |
| 425 | 11 | 778 | 104 | 99840 | 1 |
| 984 | 6 | 317 | 112 | 319424 | 1 |
| 984 | 7 | 807 | 124 | 299832 | 2 |
| 984 | 8 | 521 | 112 | 215264 | 1 |
| 984 | 9 | 1042 | 112 | 187488 | 1 |
| 984 | 10 | 521 | 112 | 222208 | 1 |
| 984 | 11 | 320 | 112 | 249984 | 8 |
| 984 | 12 | 228 | 14 | 19096 | 1 |
| 671 | 1 | 311 | 110 | 264000 | 3 |
| 671 | 2 | 906 | 110 | 264000 | 3 |
| 671 | 3 | 217 | 110 | 220000 | 3 |
| 792 | 1 | ND | 46 | 88640 | 1 |
| 792 | 2 | ND | 50 | 248057 | 1 |
| 792 | 3 | ND | 46 | 226170 | 1 |
| 792 | 4 | ND | 46 | 226170 | 1 |
| 792 | 5 | ND | 46 | 226170 | 1 |
| 792 | 6 | ND | 46 | 226170 | 1 |

TABLE 51 (Continued)

EXHAUST DATA BY MACHINE ** PRESSES - GRAVURE

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 932 | 1 | ND | 74 | 411255 | 1 |
| 285 | 1 | 547 | 168 | 362880 | 4 |
| 285 | 2 | 430 | 132 | 289872 | 4 |
| 712 | 1 | 1519 | 63 | 131040 | 1 |
| 712 | 2 | 2532 | 105 | 191100 | 1 |
| 712 | 3 | 2049 | 85 | 265200 | 1 |
| 508 | 3 | 1000 | 61 | 177425 | 1 |
| 508 | 5 | 275 | 106 | 277236 | 2 |
| 508 | 6 | 478 | 342 | 475756 | 5 |
| 508 | 7 | 414 | 302 | 769027 | 6 |
| 37 | 4 | ND | 49 | 166113 | 3 |
| 37 | 5 | ND | 40 | 150609 | 5 |
| 37 | 6 | ND | 26 | 47250 | 3 |
| 37 | 8 | ND | 11 | 8873 | 2 |
| 37 | 9 | ND | 12 | 32906 | 2 |
| 338 | 1 | ND | 57 | 244426 | 3 |
| 338 | 2 | ND | 32 | 161741 | 2 |
| 338 | 3 | ND | 43 | 168653 | 3 |
| 338 | 4 | ND | 40 | 173578 | 3 |
| 510 | 1 | ND | 48 | 184320 | 7 |
| 510 | 2 | ND | 48 | 185518 | 2 |
| 510 | 3 | ND | 48 | 205286 | 2 |
| 510 | 4 | ND | 48 | 184320 | 7 |
| 510 | 5 | ND | 32 | 157248 | 3 |
| 510 | 6 | ND | 52 | 223776 | 2 |
| 215 | 3 | 427 | 33 | 44100 | 1 |
| 215 | 4 | 503 | 58 | 204978 | 1 |
| 738 | 2 | ND | 36 | 242611 | 2 |
| 304 | 5 | 310 | 81 | 113400 | 1 |
| 355 | 6 | ND | 31 | 103484 | 2 |
| 456 | 1 | 907 | 43 | 28380 | 2 |
| 456 | 2 | 650 | 87 | 522000 | 4 |
| 456 | 3 | 318 | 113 | 678000 | 3 |

## TABLE 51 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - GRAVURE

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 553 | 1 | ND | 11 | 8739 | 1 |
| 553 | 2 | ND | 11 | 15946 | 1 |
| 745 | 2 | ND | <1 | 1625 | 1 |
| 1099 | 1 | 359 | 44 | 27783 | 1 |
| 1099 | 4 | 5 | 2 | 10558 | 1 |
| 1099 | 5 | 5 | 2 | 10558 | 1 |
| 1099 | 6 | 5 | 2 | 10558 | 1 |
| 1099 | 7 | 5 | 2 | 10558 | 1 |
| [illegible] | 8 | 5 | 2 | 10558 | 1 |
| 1099 | 9 | 5 | 2 | 10558 | 1 |
| 1099 | 10 | 5 | 2 | 10558 | 1 |
| 1099 | 11 | 56 | 8 | 42457 | 1 |
| 1110 | 1 | 665 | 21 | 80315 | 1 |
| 32 | 3 | ND | 100 | 367718 | 3 |
| 32 | 4 | ND | 93 | 362794 | 2 |
| 32 | 6 | ND | 98 | 365040 | 2 |
| 382 | 1 | ND | 52 | 155925 | 3 |
| 382 | 2 | ND | 52 | 155925 | 3 |
| 382 | 3 | ND | 52 | 155925 | 3 |
| 382 | 4 | ND | 52 | 155925 | 3 |
| 382 | 5 | ND | 52 | 155925 | 3 |
| 382 | 6 | ND | 52 | 155925 | 3 |
| 476 | 2 | ND | 140 | 715142 | 4 |
| 799 | 4 | 241 | 26 | 31080 | 1 |
| 799 | 6 | 132 | 36 | 88525 | 4 |
| 799 | 7 | 98 | 42 | 142800 | 1 |
| 13 | 6 | 38 | 6 | 25144 | 2 |
| 42 | 1 | ND | 2 | 7865 | 0 |
| 42 | 2 | ND | 3 | 15731 | 0 |
| 42 | 3 | ND | 13 | 21914 | 0 |
| 42 | 4 | ND | 2 | 11861 | 0 |
| 42 | 5 | ND | 3 | 153 | 0 |
| 42 | 6 | ND | 2 | 1116 | 0 |
| 42 | 8 | ND | <1 | 4559 | 0 |
| 42 | 9 | ND | <1 | 1673 | 0 |
| 42 | 10 | ND | <1 | 322 | 0 |
| 42 | 11 | ND | 3 | 1445 | 0 |
| 42 | 12 | ND | 3 | 34 | 0 |

## TABLE 51 (Continued)

### EXHAUST DATA BY MACHINE ** PRESSES - GRAVURE

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 238 | 1 | 104 | 5 | 15600 | 1 |
| 238 | 2 | 85 | 33 | 140400 | 2 |
| 238 | 3 | 77 | 29 | 126360 | 5 |
| 263 | 1 | 65 | 41 | 206163 | 4 |
| 263 | 2 | 83 | 41 | 64774 | 1 |
| 263 | 3 | 140 | 48 | 197568 | 4 |
| 263 | 4 | 62 | 29 | 69431 | 1 |
| 263 | 5 | 57 | 32 | 109133 | 4 |
| 263 | 6 | 52 | 21 | 120170 | 4 |
| 431 | 5 | 119 | 22 | 32968 | 2 |
| 456 | 1 | 146 | 7 | 7528 | 2 |
| 456 | 2 | 189 | 25 | 66759 | 4 |
| 456 | 3 | 88 | 31 | 93713 | 8 |
| 514 | 1 | ND | 4 | 19240 | 0 |
| 514 | 2 | ND | 4 | 15566 | 0 |
| 514 | 3 | ND | 2 | 3724 | 0 |
| 707 | 1 | 98 | 26 | 66339 | 3 |
| 707 | 2 | 124 | 29 | 73710 | 3 |
| 707 | 3 | 117 | 26 | 66339 | 3 |
| 707 | 4 | 86 | 26 | 66339 | 3 |
| 707 | 5 | 58 | 19 | 48157 | 2 |
| 707 | 6 | 56 | 25 | 61916 | 3 |
| 707 | 7 | 83 | 26 | 66339 | 4 |
| 707 | 8 | 39 | 26 | 66339 | 4 |
| 707 | 9 | 67 | 26 | 66339 | 5 |
| 707 | 10 | 65 | 26 | 66339 | 4 |
| 707 | 11 | 120 | 32 | 81081 | 5 |
| 770 | 3 | 56 | 9 | 36400 | 4 |
| 832 | 1 | 347 | 300 | 493296 | 4 |
| 832 | 2 | 347 | 300 | 493296 | 4 |
| 832 | 3 | 347 | 300 | 126720 | 4 |
| 832 | 4 | 347 | 300 | 126720 | 4 |
| 1056 | 4 | 351 | 70 | 392000 | 3 |
| 1056 | 5 | 337 | 100 | 560000 | 3 |
| 1056 | 6 | 372 | 40 | 224000 | 1 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 41 | 143 | 140 | 41 | 126720 | 2.5 |

## TABLE 52

### EXHAUST DATA BY MACHINE ** COATERS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 332 | 2 | 2400 | 92 | 382452 | 1 |
| 88 | 4 | 64 | 29 | 174442 | 3 |
| 1101 | 4 | 143 | 4 | 6529 | 1 |
| 461 | 1 | 434 | 120 | 734400 | 1 |
| 461 | 2 | 434 | 60 | 367200 | 1 |
| 461 | 3 | 493 | 53 | 324360 | 1 |
| 478 | 1 | ND | 131 | 773105 | 3 |
| 478 | 2 | ND | 95 | 563507 | 2 |
| 664 | 1 | ND | 32 | 125496 | 1 |
| 103 | 6 | 137 | 21 | 33476 | 1 |
| 844 | 1 | ND | 69 | 281216 | 3 |
| 715 | 7 | 456 | 146 | 535122 | 2 |
| 715 | 8 | 582 | 146 | 605665 | 2 |
| 425 | 14 | 521 | 36 | 167040 | 1 |
| 984 | 14 | 810 | 143 | 393536 | 3 |
| 984 | 15 | 1325 | 116 | 626400 | 1 |
| 233 | 5 | 1400 | 667 | 2360212 | 2 |
| 233 | 6 | 621 | 725 | 886079 | 5 |
| 449 | 1 | 2661 | 70 | 135296 | 1 |
| 891 | 1 | 2 | 20 | 97565 | 1 |
| 891 | 2 | 1 | 26 | 57915 | 1 |
| 891 | 3 | ND | 17 | 90720 | 1 |
| 891 | 4 | ND | 6 | 15444 | 1 |
| 891 | 5 | 473 | 96 | 570240 | 2 |
| 891 | 6 | 496 | 99 | 588060 | 2 |
| 891 | 7 | 602 | 120 | 713513 | 2 |
| 891 | 8 | 542 | 133 | 791208 | 2 |
| 891 | 9 | 3164 | 146 | 688905 | 1 |
| 333 | 1 | 37 | 6 | 6965 | 1 |

## TABLE 52 (Continued)

### EXHAUST DATA BY MACHINE ** COATERS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 645 | 3 | 302 | 60 | 291600 | 1 |
| 645 | 4 | 203 | 31 | 150660 | 1 |
| 96 | 8 | 72 | 18 | 70200 | 3 |
| 96 | 10 | 118 | 25 | 99372 | 3 |
| 96 | 11 | 131 | 26 | 101400 | 2 |
| 738 | 1 | ND | 27 | 181958 | 1 |
| 962 | 6 | 127 | 7 | 11970 | 1 |
| 355 | 2 | ND | 17 | 6753 | 1 |
| 401 | 1 | ND | 80 | 260576 | 0 |
| 512 | 4 | 419 | 56 | 314496 | 3 |
| 878 | 10 | 299 | 8 | 41160 | 1 |
| 1099 | 12 | 620 | 419 | 1342000 | 1 |
| 1099 | 13 | 620 | 419 | 1342000 | 1 |
| 1099 | 14 | 474 | 73 | 327938 | 1 |
| 1099 | 15 | 27 | 19 | 79301 | 2 |
| 1099 | 16 | 380 | 158 | 662235 | 2 |
| 1099 | 17 | 4 | 3 | 13912 | 2 |
| 1099 | 18 | 63 | 5 | 3510 | 1 |
| 788 | 1 | 265 | 10 | 15262 | 1 |
| 788 | 2 | 106 | 3 | 3270 | 1 |
| 799 | 5 | 901 | 25 | 19806 | 1 |
| 6 | 4 | ND | 23 | 12361 | 1 |
| 6 | 5 | ND | 4 | 178 | 1 |
| 294 | 1 | ND | 9 | 26250 | 5 |
| 431 | 3 | 110 | 13 | 20986 | 2 |
| 431 | 4 | 88 | 14 | 8527 | 3 |
| 547 | 5 | 603 | 40 | 47341 | 3 |
| 707 | 14 | 163 | 44 | 38513 | 4 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 30 | 57 | 400 | 36 | 150660 | 1.8 |

# TABLE 53

## EXHAUST DATA BY MACHINE ** LAMINATORS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 451 | 1 | ND | 240 | 308352 | 4 |
| 451 | 2 | ND | 240 | 326400 | 4 |
| 674 | 9 | ND | 26 | 86982 | 1 |
| 674 | 10 | ND | 13 | 26250 | 1 |
| 581 | 11 | 1777 | 66 | 196361 | 1 |
| 581 | 12 | 1777 | 66 | 196361 | 1 |
| 581 | 13 | 625 | 100 | 348453 | 1 |
| 581 | 14 | 730 | 65 | 274516 | 2 |
| 702 | 3 | 1053 | 45 | 151733 | 1 |
| 702 | 5 | 625 | 100 | 348453 | 1 |
| 103 | 7 | 344 | 13 | 27779 | 1 |
| 1079 | 2 | ND | 24 | 118404 | 1 |
| 1079 | 3 | ND | 24 | 118404 | 1 |
| 1079 | 4 | ND | 24 | 118404 | 1 |
| 89 | 3 | ND | 15 | 27990 | 1 |
| 984 | 13 | 751 | 60 | 216000 | 1 |
| 671 | 9 | 1061 | 150 | 315000 | 2 |
| 671 | 10 | 814 | 150 | 420000 | 3 |
| 671 | 11 | 1050 | 150 | 420000 | 3 |
| 671 | 12 | 658 | 150 | 451500 | 4 |
| 671 | 13 | 488 | 150 | 367500 | 1 |
| 671 | 14 | 271 | 150 | 525000 | 2 |
| 676 | 5 | 109 | 18 | 41344 | 2 |
| 786 | 4 | 123 | 19 | 50123 | 1 |
| 246 | 7 | 383 | 73 | 377410 | 2 |
| 197 | 8 | 937 | 144 | 633600 | 1 |
| 197 | 9 | 78 | 12 | 52800 | 1 |
| 37 | 12 | ND | 2 | 4050 | 1 |
| 37 | 13 | ND | 2 | 1512 | 1 |
| 37 | 14 | ND | 2 | 1210 | 1 |
| 37 | 15 | ND | 2 | 7695 | 1 |
| 37 | 16 | ND | 2 | 10004 | 2 |

TABLE 53 (Continued)

EXHAUST DATA BY MACHINE ** LAMINATORS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 215 | 1 | 823 | 70 | 239643 | 1 |
| 215 | 2 | 1510 | 116 | 425723 | 1 |
| 355 | 1 | ND | 12 | 48626 | 1 |
| 356 | 1 | 488 | 11 | 68916 | 2 |
| 356 | 2 | 44 | 15 | 99912 | 2 |
| 356 | 3 | 115 | 26 | 114978 | 3 |
| 356 | 4 | 31 | <1 | 1231 | 1 |
| 356 | 5 | 249 | 28 | 193589 | 1 |
| 356 | 6 | 114 | 10 | 31353 | 1 |
| 512 | 3 | 1215 | 56 | 314496 | 1 |
| 878 | 11 | 151 | 7 | 34300 | 1 |
| 909 | 7 | 335 | 11 | 40903 | 1 |
| 1124 | 3 | ND | <1 | 4246 | 2 |
| 45 | 1 | ND | 53 | 186657 | 1 |
| 249 | 1 | 80 | 12 | 2054 | 1 |
| 249 | 2 | 267 | 12 | 13415 | 1 |
| 249 | 3 | 267 | 12 | 16400 | 1 |
| 249 | 4 | 269 | 25 | 49484 | 1 |
| 249 | 5 | 713 | 110 | 220429 | 1 |
| 249 | 6 | 233 | 33 | 115073 | 1 |
| 249 | 7 | 246 | 28 | 49860 | 1 |
| 799 | 8 | 1116 | 58 | 112849 | 2 |
| 799 | 9 | 219 | 16 | 21874 | 1 |
| 799 | 10 | 179 | 88 | 473850 | 3 |
| 1017 | 6 | ND | 24 | 18533 | 1 |
| 1017 | 7 | ND | 24 | 118325 | 1 |
| 6 | 1 | ND | 1 | 264 | 1 |
| 6 | 2 | ND | 1 | 418 | 1 |
| 6 | 3 | ND | 1 | 668 | 1 |
| 6 | 6 | ND | 1 | 264 | 1 |
| 42 | 7 | ND | 6 | 3868 | 0 |

## TABLE 53 (Continued)

### EXHAUST DATA BY MACHINE ** LAMINATORS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 238 | 4 | 146 | 16 | 44100 | 1 |
| 263 | 7 | 21 | 3 | 5419 | 2 |
| 263 | 8 | 17 | 2 | 2557 | 1 |
| 334 | 7 | 18 | 4 | 14580 | 3 |
| 431 | 6 | 180 | 6 | 4082 | 1 |
| 456 | 5 | 219 | 23 | 37706 | 2 |
| 547 | 1 | 172 | 15 | 39970 | 1 |
| 547 | 2 | 323 | 8 | 4876 | 2 |
| 547 | 3 | 176 | 34 | 78674 | 2 |
| 707 | 12 | 382 | 27 | 13500 | 1 |
| 707 | 13 | 35 | 2 | 208 | 1 |
| 881 | 8 | 173 | 10 | 33600 | 1 |
| 881 | 9 | 410 | 15 | 50400 | 1 |
| 884 | 1 | ND | 8 | 57513 | 2 |
| 884 | 2 | ND | 16 | 113396 | 2 |
| 884 | 3 | ND | 15 | 105919 | 1 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 35 | 79 | 249 | 18 | 50400 | 1.5 |

## TABLE 54

### EXHAUST DATA BY MACHINE ** PRIMING STATIONS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 651 | 2 | ND | 4 | 13432 | 1 |
| 702 | 6 | 730 | 65 | 274516 | 2 |
| 715 | 10 | 44 | 6 | 26637 | 2 |
| 425 | 12 | 277 | 34 | 212160 | 1 |
| 425 | 13 | 277 | 34 | 212160 | 1 |
| 984 | 16 | 124 | 16 | 71680 | 2 |
| 984 | 17 | 79 | 14 | 70560 | 2 |
| 984 | 18 | 193 | 38 | 173280 | 2 |
| 671 | 4 | 465 | 30 | 84000 | 2 |
| 671 | 5 | 203 | 30 | 100800 | 3 |
| 671 | 6 | 465 | 30 | 52500 | 2 |
| 671 | 7 | 465 | 30 | 52500 | 2 |
| 671 | 8 | 94 | 72 | 302400 | 4 |
| 725 | 1 | ND | 17 | 56884 | 2 |
| 508 | 1 | 691 | 58 | 229269 | 2 |
| 508 | 2 | 496 | 99 | 352776 | 2 |
| 37 | 1 | ND | 4 | 9900 | 2 |
| 37 | 2 | ND | 12 | 16589 | 1 |
| 37 | 3 | ND | 14 | 63000 | 5 |
| 37 | 10 | ND | 5 | 10206 | 2 |
| 510 | 8 | ND | 19 | 94837 | 3 |
| 510 | 9 | ND | 16 | 82467 | 3 |
| 96 | 9 | 95 | 2 | 8522 | 1 |
| 96 | 12 | ND | 3 | 12227 | 0 |
| 355 | 4 | ND | 16 | 71173 | 1 |
| 355 | 5 | ND | 14 | 53807 | 2 |
| 356 | 7 | 86 | 23 | 105716 | 4 |
| 456 | 5 | 235 | 25 | 37500 | 2 |
| 878 | 9 | 167 | 15 | 51450 | 1 |

TABLE 54 (Continued)

EXHAUST DATA BY MACHINE ** PRIMING STATIONS

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 909 | 6 | 123 | 15 | 32801 | 2 |
| 964 | 5 | 49 | 3 | 12733 | 1 |
| 32 | 8 | ND | 19 | 94255 | 2 |
| 32 | 9 | ND | 11 | 41328 | 1 |
| 45 | 2 | 233 | 68 | 358369 | 2 |
| 799 | 11 | 149 | 43 | 257275 | 2 |
| 799 | 12 | 98 | 16 | 78858 | 2 |
| 263 | 10 | 39 | 8 | 3457 | 2 |
| 263 | 11 | 57 | 11 | 43835 | 2 |
| 431 | 7 | 357 | 9 | 39881 | 1 |
| 707 | 15 | 283 | 27 | 67284 | 2 |
| 707 | 16 | 165 | 27 | 67284 | 2 |
| 707 | 17 | 1318 | 189 | 470988 | 3 |
| 707 | 18 | 491 | 189 | 470988 | 2 |
| 770 | 6 | 50 | 8 | 41580 | 4 |
| 770 | 7 | 32 | 8 | 35640 | 2 |
| 1056 | 7 | 63 | 35 | 196000 | 2 |
| 1056 | 8 | 61 | 40 | 224000 | 2 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 25 | 47 | 166 | 17 | 67284 | 2.1 |

## TABLE 55

### EXHAUST DATA BY MACHINE ** PRESS + COATER

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 829 | 1 | ND | 6 | 17971 | 1 |
| 829 | 2 | ND | 3 | 13478 | 1 |
| 829 | 3 | ND | 2 | 995 | 1 |
| 829 | 4 | ND | 5 | 19032 | 1 |
| 829 | 5 | ND | 4 | 16474 | 1 |
| 508 | 4 | 571 | 116 | 65185 | 3 |
| 510 | 11 | ND | 48 | 254100 | 3 |
| 962 | 5 | 25 | 3 | 17626 | 3 |
| 1099 | 2 | 2092 | 113 | 56250 | 1 |
| 953 | 6 | 293 | 25 | 105840 | 1 |
| 953 | 7 | 278 | 25 | 107352 | 1 |
| 953 | 12 | 138 | 47 | 216144 | 2 |
| 953 | 13 | 145 | 47 | 216144 | 2 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 6 | 13 | 278 | 25 | 56250 | 1.6 |

# TABLE 56

## EXHAUST DATA BY MACHINE ** COATER + LAMINATOR

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 1042 | 1 | 930 | 60 | 279378 | 1 |
| 332 | 1 | 3013 | 509 | 2392796 | 1 |
| 1101 | 1 | 182 | 1 | 2822 | 1 |
| 1101 | 2 | 65 | <1 | 204 | 1 |
| 1101 | 3 | 1042 | 24 | 48384 | 1 |
| 1101 | 5 | 2578 | 32 | 35583 | 1 |
| 1101 | 6 | 2062 | 48 | 159951 | 1 |
| 1101 | 7 | 73 | 3 | 11424 | 1 |
| 1101 | 8 | 125 | 5 | 7085 | 1 |
| 1101 | 9 | 8854 | 34 | 68544 | 1 |
| 589 | 1 | 417 | 16 | 47275 | 1 |
| 589 | 2 | 264 | 14 | 40775 | 1 |
| 589 | 3 | 656 | 35 | 103710 | 1 |
| 589 | 4 | 167 | 8 | 23638 | 1 |
| 589 | 5 | 1606 | 45 | 149168 | 1 |
| 589 | 6 | 824 | 29 | 13115 | 1 |
| 715 | 9 | 413 | 52 | 171675 | 1 |
| 645 | 5 | 167 | 28 | 128520 | 1 |
| 645 | 6 | 117 | 20 | 98496 | 1 |
| 645 | 7 | 293 | 67 | 288000 | 1 |
| 645 | 8 | 261 | 60 | 291600 | 1 |
| 645 | 9 | 428 | 47 | 214200 | 2 |
| 645 | 10 | 439 | 47 | 214200 | 1 |
| 645 | 11 | 141 | 28 | 128520 | 1 |
| 338 | 5 | ND | 7 | 36432 | 1 |
| 338 | 6 | ND | 10 | 48576 | 2 |
| 338 | 7 | ND | 21 | 108158 | 3 |
| 338 | 8 | ND | 16 | 85536 | 2 |
| 510 | 7 | ND | 24 | 87584 | 1 |
| 510 | 10 | ND | 43 | 226380 | 2 |
| 96 | 1 | 144 | 12 | 32886 | 1 |
| 96 | 2 | 88 | 7 | 13434 | 1 |
| 96 | 3 | 353 | 37 | 83021 | 2 |
| 96 | 4 | 306 | 26 | 17993 | 1 |
| 96 | 5 | 74 | 6 | 22486 | 1 |
| 96 | 6 | 49 | 16 | 43429 | 2 |
| 96 | 7 | 166 | 28 | 72563 | 2 |
| 96 | 13 | 120 | 10 | 40800 | 1 |
| 96 | 14 | 120 | 10 | 40800 | 1 |

## TABLE 56 (Continued)

EXHAUST DATA BY MACHINE ** COATER + LAMINATOR

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 962 | 1 | 45 | 7 | 51671 | 2 |
| 962 | 2 | 54 | 22 | 100650 | 3 |
| 962 | 7 | 52 | 8 | 56016 | 2 |
| 962 | 8 | 26 | 10 | 73150 | 2 |
| 1026 | 3 | 2461 | 95 | 115668 | 1 |
| 1026 | 4 | 2109 | 81 | 198288 | 1 |
| 512 | 5 | 1215 | 56 | 314496 | 2 |
| 512 | 6 | 729 | 56 | 314496 | 2 |
| 784 | 1 | 240 | 41 | 172550 | 2 |
| 784 | 2 | 207 | 53 | 223125 | 2 |
| 909 | 8 | 138 | 25 | 83490 | 3 |
| 929 | 1 | 17 | 8 | 38502 | 2 |
| 929 | 2 | 273 | 106 | 392212 | 4 |
| 964 | 4 | 17 | 2 | 9245 | 2 |
| 431 | 1 | 51 | 4 | 2858 | 1 |
| 431 | 2 | 81 | 6 | 4234 | 1 |
| 681 | 1 | ND | 22 | 137179 | 1 |
| 681 | 2 | ND | 12 | 74419 | 1 |
| 681 | 3 | ND | 10 | 58548 | 2 |
| 770 | 8 | 32 | 5 | 20160 | 4 |
| 1061 | 1 | ND | 33 | 194989 | 2 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 20 | 60 | 195 | 23 | 73784 | 1.5 |

## TABLE 57

### EXHAUST DATA BY MACHINE ** OTHER COMBINATION

| PLANT CODE | MACHINE NUMBER | AVG PPM | LBS/HR | LBS/YR | NO. OF STACKS |
|---|---|---|---|---|---|
| 829 | 6 | ND | <1 | 203 | 0 |
| 829 | 7 | ND | <1 | 2059 | 0 |
| 829 | 8 | ND | <1 | 515 | 0 |
| 581 | 7 | 801 | 155 | 619192 | 3 |
| 702 | 4 | 801 | 155 | 619192 | 3 |
| 96 | 15 | ND | 4 | 603 | 0 |
| 962 | 3 | 11 | <1 | 170 | 1 |
| 962 | 4 | 9 | <1 | 816 | 1 |
| 304 | 2 | 1228 | 100 | 561000 | 1 |
| 304 | 3 | 763 | 75 | 445500 | 1 |
| 304 | 4 | 433 | 346 | 1941060 | 2 |
| 32 | 1 | ND | 37 | 100548 | 2 |
| 32 | 5 | ND | 43 | 106704 | 2 |

| NO. OF PLANTS | TOTAL MACHINES | MEDIAN PPM | MEDIAN LBS/HR | MEDIAN LBS/YR | AVG STACKS |
|---|---|---|---|---|---|
| 7 | 13 | 763 | 37 | 100548 | 1.8 |

LEGEND FOR COST TABLES:

| Code | Machine Type |
|---|---|
| 1 | Flexographic Press |
| 2 | Gravure Press |
| 3 | Coater |
| 4 | Laminator |
| 5 | Priming Station |
| 6 | Press and Coater |
| 7 | Coater and Laminator |
| 8 | Other Combination |

| Code | Age Group |
|---|---|
| 1 | 0 to 4 years |
| 2 | 5 to 9 years |
| 3 | 10 to 14 years |
| 4 | 15 or more years |
| * | Age not reported |

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## TABLE 58

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1042 | 1 | 7 | 33.3 | 96.7 | 3.0 | 198.7 | 29.0 | 230.7 | .83 | 5.9 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 | 7 | 51.7 | 149.9 | 11.0 | 690.2 | 45.0 | 746.2 | .31 | 16.2 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 | 3 | 28.8 | 83.4 | 2.1 | 187.5 | 25.0 | 214.6 | .56 | 3.8 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 | 1 | 25.0 | 72.4 | .8 | 76.0 | 21.7 | 98.5 | 6.74 | 1.6 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 | 1 | 25.0 | 72.4 | .7 | 65.7 | 21.7 | 88.1 | 63.15 | 1.6 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 | 1 | 25.0 | 72.4 | .5 | 88.0 | 21.7 | 110.2 | 7.54 | 1.9 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 | 1 | 25.0 | 72.4 | .5 | 88.0 | 21.7 | 110.2 | 7.54 | 1.9 | 1100 | 6760 | 556 | 72 | 4 |
| 904 | 5 | 1 | 25.0 | 72.4 | .5 | 87.5 | 21.7 | 109.7 | 7.55 | 1.9 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 | 7 | 23.4 | 67.7 | .2 | 21.6 | 20.3 | 42.2 | 14.94 | .7 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 | 3 | 27.4 | 79.5 | .5 | 85.5 | 23.8 | 109.9 | 16.83 | 3.3 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 | 7 | 24.2 | 70.1 | .2 | 23.7 | 21.0 | 44.9 | 1.26 | 1.3 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 | 7 | 26.1 | 75.5 | .7 | 71.3 | 22.7 | 94.6 | .59 | 2.4 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 | 7 | 28.8 | 83.4 | 1.4 | 163.9 | 25.0 | 190.3 | 16.66 | 3.9 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 | 7 | 28.8 | 83.4 | .9 | 97.5 | 25.0 | 123.3 | 17.41 | 3.8 | 2500 | 3600 | 125 | 200 | 2 |
| 1101 | 9 | 7 | 22.7 | 65.8 | .1 | 2.3 | 19.7 | 22.1 | .32 | .4 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 | 3 | 70.6 | 204.7 | 15.4 | 1259.5 | 61.4 | 1336.3 | 1.82 | 26.5 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 | 3 | 46.3 | 134.3 | 7.5 | 629.7 | 40.3 | 677.5 | 1.85 | 13.2 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 | 3 | 40.9 | 118.6 | 5.8 | 484.6 | 35.6 | 525.9 | 1.62 | 10.3 | 7000 | 7200 | 493 | 250 | 2 |
| 501 | 1 | 1 | 29.6 | 85.7 | 1.6 | 162.1 | 25.7 | 189.4 | 1.25 | 4.3 | 2800 | 5960 | 1053 | 200 | 3 |
| 501 | 2 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 2 |
| 501 | 3 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 2 |
| 501 | 4 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 3 |
| 501 | 5 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 1 |
| 501 | 6 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 1 |
| 501 | 7 | 8 | 55.9 | 162.1 | 7.6 | 735.4 | 48.6 | 791.7 | 1.28 | 19.3 | 12560 | 5960 | 881 | 200 | 2 |
| 501 | 8 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 2 |
| 501 | 9 | 1 | 55.7 | 161.5 | 7.6 | 730.2 | 48.5 | 786.2 | 1.27 | 19.1 | 12480 | 5960 | 886 | 200 | 2 |
| 501 | 10 | 2 | 78.7 | 228.2 | 12.8 | 1306.0 | 68.5 | 1387.3 | 4.21 | 32.2 | 21000 | 5880 | 434 | 200 | 1 |
| 501 | 11 | 4 | 28.5 | 82.6 | 1.4 | 130.0 | 24.8 | 156.2 | .80 | 3.7 | 2400 | 5960 | 1777 | 200 | 2 |
| 501 | 12 | 4 | 28.5 | 82.6 | 1.4 | 130.0 | 24.8 | 156.2 | .80 | 3.7 | 2400 | 5960 | 1777 | 200 | 3 |
| 501 | 13 | 4 | 50.0 | 145.0 | 6.3 | 629.0 | 43.5 | 678.8 | 1.93 | 15.9 | 10370 | 5960 | 625 | 200 | 2 |
| 501 | 14 | 4 | 37.6 | 108.9 | 3.4 | 338.5 | 32.7 | 374.6 | 1.36 | 8.8 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 8.8 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 | 1 | 37.6 | 108.9 | 3.4 | 312.3 | 32.7 | 348.3 | .74 | 6.8 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 | 4 | 29.6 | 85.7 | 1.6 | 162.1 | 25.7 | 189.4 | 1.25 | 4.3 | 2800 | 5960 | 1053 | 200 | 3 |
| 702 | 4 | 8 | 55.9 | 162.1 | 7.6 | 735.4 | 46.6 | 791.7 | 1.28 | 19.3 | 12560 | 5960 | 881 | 200 | 2 |
| 702 | 5 | 4 | 50.0 | 145.0 | 6.3 | 629.0 | 43.5 | 678.8 | 1.75 | 15.9 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 | 5 | 37.6 | 108.9 | 3.4 | 338.5 | 32.7 | 374.6 | 1.36 | 6.8 | 5760 | 5960 | 730 | 200 | 2 |

## TABLE 58 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST | + | FUEL COST | + | OTHER COSTS | = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 589 | 1 | 7 | 28.8 | 83.4 | 1.0 | | 117.7 | | 25.0 | | 143.7 | 3.04 | 3.9 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 | 7 | 31.2 | 90.5 | 1.5 | | 156.0 | | 27.1 | | 184.7 | 4.53 | 5.1 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 | 7 | 31.4 | 91.1 | 1.4 | | 158.9 | | 27.3 | | 187.6 | 1.81 | 5.5 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 | 7 | 30.4 | 88.2 | 1.4 | | 144.8 | | 26.5 | | 172.7 | 7.30 | 4.7 | 3120 | 4410 | 167 | 220 | 1 |
| 589 | 5 | 7 | 26.9 | 78.1 | .8 | | 67.4 | | 23.4 | | 91.6 | .61 | 2.8 | 1020 | 4410 | 1606 | 210 | 1 |
| 589 | 6 | 7 | 28.2 | 81.7 | .1 | | 15.7 | | 24.5 | | 40.4 | 3.88 | 3.6 | 2292 | 675 | 824 | 160 | 1 |
| | | | | | | | | | | | | | | | | | | |
| 1126 | 1 | 1 | 28.8 | 83.4 | .2 | | 27.6 | | 25.0 | | 52.8 | 3.91 | 4.1 | 2500 | 1000 | 506 | 110 | 4 |
| 1126 | 2 | 1 | 30.1 | 87.3 | 1.1 | | 160.5 | | 26.2 | | 187.8 | 1.74 | 4.9 | 3600 | 5000 | 678 | 120 | 4 |
| 1126 | 3 | 1 | 28.8 | 83.4 | .3 | | 39.9 | | 25.0 | | 65.1 | 2.07 | 4.1 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 | 1 | 49.0 | 142.1 | 3.9 | | 569.0 | | 42.6 | | 615.5 | 4.41 | 16.5 | 10600 | 5000 | 242 | 110 | 4 |
| 1126 | 5 | 1 | 35.5 | 103.0 | 1.8 | | 261.0 | | 30.9 | | 293.7 | 1.86 | 8.2 | 5000 | 4000 | 610 | 110 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 103 | 1 | 1 | 28.8 | 83.4 | .5 | | 81.4 | | 25.0 | | 106.9 | 9.99 | 4.2 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 | 1 | 35.5 | 103.0 | 2.0 | | 319.3 | | 30.9 | | 352.2 | 5.73 | 8.3 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 | 1 | 31.1 | 90.2 | 1.8 | | 204.1 | | 27.1 | | 233.0 | 1.48 | 5.3 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 | 1 | 35.5 | 103.0 | 2.5 | | 336.5 | | 30.9 | | 369.9 | 4.79 | 8.1 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 | 1 | 40.1 | 116.3 | 3.9 | | 450.5 | | 34.9 | | 489.2 | 4.34 | 10.5 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 | 3 | 49.0 | 142.1 | 2.6 | | 337.2 | | 42.6 | | 382.5 | 11.43 | 16.0 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 | 4 | 28.8 | 83.4 | .7 | | 94.5 | | 25.0 | | 120.2 | 4.33 | 4.0 | 2500 | 3450 | 344 | 150 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 865 | 1 | 1 | 27.4 | 79.5 | .3 | | 44.6 | | 23.8 | | 68.8 | 4.39 | 3.2 | 2000 | 2036 | 251 | 140 | 4 |
| 865 | 2 | 1 | 37.1 | 107.6 | .9 | | 128.8 | | 32.3 | | 162.0 | 2.57 | 9.2 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 | 1 | 27.6 | 79.9 | .2 | | 33.1 | | 24.0 | | 57.3 | 1.82 | 3.5 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 | 1 | 34.4 | 99.8 | .8 | | 110.9 | | 29.9 | | 141.6 | 3.00 | 7.6 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 | 2 | 80.6 | 233.7 | 2.1 | | 313.2 | | 70.1 | | 385.4 | 1.64 | 36.6 | 21700 | 1321 | 534 | 80 | 4 |
| | | | | | | | | | | | | | | | | | | |
| 715 | 1 | 2 | 62.1 | 180.0 | 8.8 | | 1142.6 | | 54.0 | | 1205.4 | 12.47 | 23.8 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 | 1 | 33.0 | 95.8 | 1.7 | | 244.3 | | 28.7 | | 274.7 | 2.08 | 6.7 | 4083 | 5481 | 636 | 115 | 2 |
| 715 | 3 | 1 | 34.5 | 99.9 | 1.2 | | 153.0 | | 30.0 | | 184.2 | 2.77 | 7.3 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 | 1 | 32.0 | 92.9 | .0 | | 2.2 | | 27.9 | | 30.1 | 14.06 | 6.1 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 | 1 | 36.6 | 106.2 | 2.5 | | 380.7 | | 31.9 | | 415.0 | 3.08 | 9.0 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 | 1 | 45.4 | 131.6 | 4.1 | | 609.3 | | 39.5 | | 652.9 | 4.67 | 14.3 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 | 3 | 78.1 | 226.5 | 10.2 | | 1039.7 | | 67.9 | | 1117.9 | 2.09 | 32.1 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 | 3 | 65.9 | 191.2 | 9.9 | | 1007.0 | | 57.4 | | 1074.3 | 1.77 | 25.2 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 | 7 | 44.3 | 128.5 | 4.8 | | 348.7 | | 38.5 | | 392.1 | 2.28 | 11.6 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 | 5 | 47.0 | 136.4 | 4.4 | | 576.6 | | 40.9 | | 622.0 | 23.35 | 14.8 | 9276 | 5491 | 44 | 150 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 425 | 1 | 1 | 39.0 | 113.1 | 1.9 | | 252.5 | | 33.9 | | 288.4 | 2.56 | 10.1 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 | 1 | 37.7 | 109.2 | 2.9 | | 375.1 | | 32.8 | | 410.7 | 2.25 | 9.3 | 5800 | 6000 | 427 | 140 | 3 |
| 425 | 3 | 1 | 38.7 | 112.3 | 1.3 | | 174.5 | | 33.7 | | 209.5 | 2.65 | 10.0 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 | 1 | 38.7 | 112.3 | 2.3 | | 295.3 | | 33.7 | | 331.2 | 2.48 | 10.0 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 | 1 | 36.3 | 105.3 | 2.0 | | 261.1 | | 31.6 | | 294.8 | 2.11 | 8.5 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 | 1 | 49.5 | 143.7 | 3.9 | | 508.6 | | 43.1 | | 555.6 | 4.06 | 16.4 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 | 2 | 44.7 | 129.6 | 1.9 | | 165.6 | | 38.9 | | 206.4 | 1.19 | 12.6 | 8400 | 2100 | 798 | 225 | 3 |

## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 425 | 8 2 | 42.5 | 123.3 | 4.6 | 401.5 | 37.0 | 443.0 | 1.10 | 11.4 | 7600 | 5600 | 882 | 225 | 4 |
| 425 | 9 2 | 43.6 | 126.4 | 6.4 | 562.2 | 37.9 | 606.5 | 1.14 | 12.0 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 2 | 45.0 | 130.4 | 6.0 | 537.6 | 39.1 | 582.7 | 1.45 | 12.8 | 8500 | 6300 | 789 | 225 | 4 |
| 425 | 11 2 | 45.5 | 131.9 | 1.1 | 98.4 | 39.6 | 139.1 | 1.39 | 13.1 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 5 | 43.6 | 126.4 | 7.2 | 625.4 | 37.9 | 670.5 | 3.16 | 11.8 | 8000 | 7800 | 277 | 250 | 4 |
| 425 | 13 5 | 43.6 | 126.4 | 7.2 | 625.4 | 37.9 | 670.5 | 3.16 | 11.8 | 8000 | 7800 | 277 | 250 | 2 |
| 425 | 14 3 | 34.2 | 99.0 | 2.6 | 263.0 | 29.7 | 295.2 | 1.77 | 6.9 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 1 | 62.5 | 181.3 | 5.2 | 675.0 | 54.4 | 734.5 | 7.08 | 24.2 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 1 | 38.2 | 110.8 | 1.8 | 235.5 | 33.2 | 270.5 | 2.90 | 9.7 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 1 | 46.3 | 134.3 | 2.7 | 359.1 | 40.3 | 402.1 | 4.19 | 14.5 | 9000 | 3600 | 268 | 140 | 4 |
| 984 | 4 1 | 34.2 | 99.0 | 1.1 | 144.3 | 29.7 | 175.1 | 2.19 | 7.2 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 1 | 38.2 | 110.8 | 1.5 | 202.8 | 33.2 | 237.5 | 2.96 | 9.7 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 2 | 84.1 | 243.9 | 11.8 | 1089.9 | 73.2 | 1174.9 | 3.68 | 34.5 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 2 | 49.0 | 142.1 | 4.2 | 377.3 | 42.6 | 424.2 | 1.41 | 15.0 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 2 | 59.8 | 173.4 | 4.8 | 435.8 | 52.0 | 492.6 | 2.29 | 21.0 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 2 | 40.9 | 118.6 | 2.0 | 177.2 | 35.6 | 214.8 | 1.15 | 10.5 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 2 | 59.8 | 173.4 | 4.9 | 449.8 | 52.0 | 506.8 | 2.28 | 21.0 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 2 | 83.6 | 242.3 | 9.2 | 845.3 | 72.7 | 927.1 | 3.71 | 34.2 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 2 | 32.8 | 95.1 | .9 | 91.7 | 28.5 | 121.1 | 6.34 | 6.0 | 4000 | 2200 | 228 | 225 | 4 |
| 984 | 13 4 | 36.0 | 104.5 | 2.1 | 255.3 | 31.4 | 288.8 | 1.34 | 8.3 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 3 | 53.1 | 153.8 | 3.5 | 397.8 | 46.2 | 447.4 | 1.14 | 18.4 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 3 | 37.4 | 108.4 | 3.0 | 303.9 | 32.5 | 339.4 | .54 | 9.1 | 5700 | 6000 | 1325 | 155 | 4 |
| 984 | 16 5 | 44.7 | 129.6 | 6.0 | 466.2 | 38.9 | 511.0 | 7.13 | 11.9 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 5 | 53.1 | 153.8 | 8.3 | 753.0 | 46.2 | 807.5 | 11.44 | 17.0 | 11500 | 6300 | 79 | 245 | 3 |
| 984 | 18 5 | 56.6 | 164.0 | 9.0 | 728.0 | 49.2 | 786.2 | 4.54 | 18.5 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 2 | 84.1 | 243.9 | 5.7 | 769.3 | 73.2 | 848.2 | 3.21 | 37.6 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 2 | 43.3 | 125.7 | 1.8 | 245.3 | 37.7 | 284.8 | 1.08 | 13.1 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 2 | 111.1 | 322.2 | 6.4 | 947.7 | 96.7 | 1050.8 | 4.78 | 54.8 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 5 | 33.3 | 96.7 | 1.2 | 187.7 | 29.0 | 218.0 | 2.39 | 7.0 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 5 | 47.9 | 139.0 | 3.1 | 544.9 | 41.7 | 589.7 | 5.85 | 16.3 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 5 | 33.3 | 96.7 | .8 | 117.3 | 29.0 | 147.1 | 2.80 | 7.0 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 5 | 33.3 | 96.7 | .8 | 117.3 | 29.0 | 147.1 | 2.80 | 7.0 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 5 | 157.0 | 455.3 | 23.7 | 3513.1 | 136.6 | 3673.5 | 12.15 | 83.1 | 50000 | 6000 | 94 | 100 | 2 |
| 671 | 9 4 | 46.8 | 135.8 | 2.8 | 259.5 | 40.8 | 303.0 | .96 | 14.1 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 4 | 54.4 | 157.8 | 3.4 | 518.8 | 47.3 | 569.5 | 1.36 | 20.2 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 4 | 47.1 | 136.6 | 2.8 | 384.3 | 41.0 | 426.0 | 1.02 | 15.5 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 4 | 62.1 | 180.1 | 4.8 | 698.7 | 54.0 | 757.5 | 1.68 | 24.8 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 4 | 76.0 | 220.4 | 6.9 | 728.8 | 66.1 | 801.6 | 2.18 | 31.2 | 20000 | 3500 | 488 | 180 | 3 |
| 671 | 14 4 | 119.2 | 345.7 | 18.0 | 1930.5 | 103.7 | 2052.3 | 3.91 | 56.1 | 36000 | 5000 | 271 | 180 | 2 |
| 302 | 1 1 | 28.8 | 83.4 | 1.8 | 238.2 | 25.0 | 265.0 | 11.17 | 4.0 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 1 | 28.8 | 83.4 | 1.8 | 241.0 | 25.0 | 267.9 | 105.63 | 4.0 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 1 | 34.7 | 100.6 | 3.5 | 445.7 | 30.2 | 479.4 | 8.05 | 7.4 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 1 | 30.5 | 88.5 | 2.3 | 293.8 | 26.6 | 324.7 | 4.70 | 5.0 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 1 | 27.8 | 80.7 | 1.6 | 198.9 | 24.2 | 224.7 | 3.14 | 3.4 | 2160 | 8544 | 639 | 160 | 2 |

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## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST | + FUEL COST | + OTHER COSTS | = ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 233 | 1 | 1 | 29.4 | 85.2 | 1.3 | 212.0 | 25.6 | 238.9 | 4.04 | 4.6 | 2735 | 6738 | 250 | 90 | 4 |
| 233 | 2 | 1 | 33.3 | 96.7 | 2.1 | 332.8 | 29.0 | 363.9 | 3.73 | 7.0 | 4200 | 6952 | 288 | 100 | 4 |
| 233 | 3 | 1 | 28.2 | 81.8 | .3 | 46.6 | 24.5 | 71.5 | 4.48 | 3.7 | 2300 | 1826 | 350 | 125 | 3 |
| 233 | 4 | 1 | 50.6 | 146.8 | 4.7 | 675.4 | 44.0 | 724.2 | 5.11 | 17.4 | 10600 | 5608 | 225 | 118 | 2 |
| 233 | 5 | 3 | 105.7 | 306.5 | 11.2 | 1136.0 | 92.0 | 1239.2 | .53 | 49.9 | 31000 | 4082 | 1400 | 140 | 3 |
| 233 | 6 | 3 | 227.2 | 658.9 | 9.5 | 1314.8 | 197.7 | 1521.9 | 1.72 | 126.9 | 76000 | 1584 | 621 | 93 | 2 |
| 449 | 1 | 3 | 26.6 | 77.1 | .3 | 22.4 | 23.1 | 45.9 | .34 | 2.6 | 1700 | 2163 | 2661 | 190 | 4 |
| 449 | 2 | 1 | 31.7 | 92.0 | 1.7 | 156.0 | 27.6 | 185.3 | .88 | 5.5 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 | 1 | 31.7 | 92.0 | 1.6 | 146.1 | 27.6 | 175.3 | .87 | 5.5 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 | 1 | 31.7 | 92.0 | 1.4 | 132.4 | 27.6 | 161.5 | .93 | 5.5 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 | 1 | 32.4 | 93.9 | 1.5 | 123.8 | 28.2 | 153.5 | .66 | 5.8 | 3850 | 3757 | 1157 | 225 | 1 |
| 449 | 6 | 1 | 25.1 | 72.9 | .0 | 3.5 | 21.9 | 25.5 | 3.04 | 1.8 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 | 1 | 31.7 | 92.0 | 1.4 | 131.2 | 27.6 | 160.2 | .91 | 5.5 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 | 1 | 31.7 | 92.0 | 1.1 | 137.0 | 27.6 | 165.6 | .97 | 5.9 | 3600 | 3811 | 875 | 120 | 4 |
| 449 | 9 | 1 | 31.7 | 92.0 | 1.8 | 155.5 | 27.6 | 184.8 | .84 | 5.4 | 3600 | 4778 | 875 | 220 | 4 |
| 285 | 1 | 2 | 76.0 | 220.4 | 6.2 | 607.4 | 66.1 | 679.7 | 1.87 | 30.7 | 20000 | 3000 | 547 | 200 | 3 |
| 285 | 2 | 2 | 76.0 | 220.4 | 7.5 | 748.4 | 66.1 | 822.0 | 2.84 | 30.7 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 | 2 | 29.3 | 84.9 | 1.1 | 105.2 | 25.5 | 131.8 | 1.01 | 4.1 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 | 2 | 29.3 | 84.9 | .7 | 51.1 | 25.5 | 77.3 | .40 | 4.1 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 | 2 | 29.3 | 84.9 | 1.6 | 148.6 | 25.5 | 175.7 | .66 | 4.1 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 | 3 | 57.6 | 167.2 | 8.0 | 906.2 | 50.1 | 964.4 | 1.69 | 20.9 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 | 3 | 57.1 | 165.6 | 6.9 | 921.8 | 49.7 | 978.4 | 1.66 | 21.3 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 | 3 | 57.1 | 165.6 | 6.9 | 904.9 | 49.7 | 961.5 | 1.35 | 21.3 | 13000 | 6600 | 602 | 120 | 4 |
| 891 | 8 | 3 | 65.2 | 189.1 | 8.6 | 1125.5 | 56.7 | 1190.7 | 1.50 | 26.2 | 16000 | 6600 | 542 | 120 | 1 |
| 676 | 1 | 1 | 38.6 | 112.0 | 2.4 | 310.7 | 33.6 | 346.7 | 10.34 | 9.8 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 | 1 | 50.5 | 146.4 | 4.2 | 536.2 | 43.9 | 584.3 | 17.43 | 16.9 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 | 1 | 34.5 | 100.2 | 1.8 | 233.5 | 30.0 | 265.4 | 7.92 | 7.4 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 | 1 | 34.5 | 100.2 | 1.8 | 233.5 | 30.0 | 265.4 | 7.92 | 7.4 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 | 4 | 51.7 | 149.9 | 2.9 | 370.3 | 45.0 | 418.2 | 10.12 | 17.6 | 11000 | 3000 | 109 | 150 | 2 |
| 333 | 1 | 3 | 49.0 | 142.1 | 1.5 | 221.3 | 42.6 | 265.4 | 36.10 | 16.4 | 10000 | 1905 | 37 | 120 | 4 |
| 786 | 1 | 1 | 41.4 | 120.2 | 4.8 | 471.6 | 36.1 | 312.4 | 5.99 | 10.9 | 7200 | 6240 | 142 | 220 | 3 |
| 786 | 2 | 1 | 41.4 | 120.2 | 4.8 | 473.2 | 36.1 | 514.0 | 6.97 | 10.9 | 7200 | 6240 | 142 | 220 | 4 |
| 786 | 3 | 1 | 35.8 | 103.7 | 2.7 | 274.5 | 31.1 | 308.3 | 7.96 | 7.7 | 5100 | 5100 | 129 | 220 | 4 |
| 786 | 4 | 4 | 49.0 | 142.1 | 3.3 | 328.7 | 42.6 | 374.7 | 7.48 | 15.1 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 | 3 | 56.9 | 165.0 | 7.5 | 711.4 | 49.5 | 768.4 | 2.64 | 19.5 | 12926 | 5400 | 302 | 220 | 2 |
| 645 | 4 | 3 | 40.8 | 141.5 | 6.0 | 548.3 | 42.5 | 596.8 | 3.96 | 14.8 | 9927 | 5400 | 203 | 236 | 4 |
| 645 | 5 | 7 | 51.5 | 149.4 | 6.5 | 611.9 | 44.8 | 663.2 | 5.16 | 16.3 | 10928 | 5400 | 167 | 230 | 4 |

## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645 | 6 | 7 | 52.4 | 152.1 | 6.0 | 659.2 | 45.6 | 710.8 | 7.22 | 17.5 | 11275 | 5400 | 117 | 188 | 4 |
| 645 | 7 | 7 | 62.0 | 179.8 | 32.7 | 303.1 | 53.9 | 389.7 | 1.35 | 8.9 | 14809 | 5400 | 293 | 931 | 2 |
| 645 | 8 | 7 | 62.4 | 181.1 | 8.0 | 829.7 | 54.3 | 892.0 | 3.06 | 22.6 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 | 7 | 41.2 | 119.4 | 3.1 | 414.0 | 35.8 | 453.0 | 2.11 | 11.5 | 7097 | 5400 | 428 | 132 | 4 |
| 645 | 10 | 7 | 40.7 | 118.0 | 3.5 | 386.6 | 35.4 | 425.5 | 1.99 | 10.8 | 6919 | 5400 | 439 | 180 | 4 |
| 645 | 11 | 7 | 56.9 | 164.9 | 5.4 | 803.2 | 49.5 | 858.1 | 6.68 | 21.3 | 12915 | 5400 | 141 | 109 | 4 |
| 246 | 1 | 1 | 46.3 | 134.3 | 3.7 | 492.7 | 40.3 | 536.7 | 4.61 | 14.6 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 | 1 | 46.3 | 134.3 | 3.7 | 492.7 | 40.3 | 536.7 | 4.61 | 14.6 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 | 1 | 46.3 | 134.3 | 3.1 | 422.3 | 40.3 | 465.7 | 4.67 | 14.6 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 | 1 | 46.3 | 134.3 | 3.7 | 492.7 | 40.3 | 536.7 | 4.61 | 14.6 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 | 1 | 46.3 | 134.3 | 3.4 | 462.5 | 40.3 | 506.3 | 4.63 | 14.6 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 | 1 | 46.3 | 134.3 | 4.2 | 563.1 | 40.3 | 607.6 | 4.57 | 14.6 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 | 4 | 55.5 | 160.9 | 6.0 | 726.1 | 48.3 | 780.4 | 2.07 | 19.0 | 12400 | 5500 | 383 | 150 | 3 |
| 500 | 1 | 5 | 36.9 | 106.9 | 3.0 | 352.4 | 32.1 | 387.5 | 1.69 | 8.7 | 5500 | 6166 | 691 | 160 | 3 |
| 500 | 2 | 5 | 57.1 | 165.6 | 6.0 | 759.1 | 49.7 | 814.8 | 2.31 | 20.9 | 13000 | 5403 | 496 | 140 | 3 |
| 500 | 3 | 2 | 32.8 | 95.1 | 1.8 | 155.7 | 28.5 | 186.0 | 1.05 | 6.0 | 4000 | 4191 | 1000 | 225 | 4 |
| 500 | 4 | 6 | 57.6 | 167.2 | 1.1 | 138.4 | 50.1 | 189.7 | 2.91 | 21.3 | 13200 | 971 | 571 | 140 | 4 |
| 500 | 5 | 2 | 89.5 | 259.6 | 6.7 | 949.3 | 77.9 | 1033.9 | 3.73 | 41.2 | 25000 | 3357 | 275 | 110 | 4 |
| 500 | 6 | 2 | 147.6 | 427.9 | 11.4 | 1677.9 | 128.4 | 1817.7 | 3.82 | 77.6 | 46500 | 3150 | 470 | 95 | 3 |
| 500 | 7 | 2 | 150.3 | 435.7 | 17.7 | 2291.8 | 130.7 | 2440.2 | 3.17 | 77.4 | 47500 | 4340 | 414 | 125 | 1 |
| 500 | 8 | 1 | 31.7 | 92.0 | .4 | 57.6 | 27.6 | 85.7 | 2.75 | 3.0 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 | 1 | 38.2 | 110.8 | 4.3 | 307.7 | 33.2 | 345.2 | 2.01 | 8.4 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 | 4 | 49.0 | 142.1 | 7.2 | 466.2 | 42.6 | 516.1 | .81 | 14.1 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 | 4 | 49.0 | 142.1 | 7.2 | 544.2 | 42.6 | 594.1 | 11.25 | 14.1 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 | 7 | 36.6 | 106.2 | 2.2 | 259.0 | 31.9 | 293.0 | 0.91 | 8.5 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 | 7 | 36.6 | 106.2 | 1.9 | 223.7 | 31.9 | 257.5 | 19.17 | 8.5 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 | 7 | 40.3 | 116.9 | 2.7 | 363.7 | 35.1 | 401.4 | 4.84 | 11.0 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 | 7 | 36.6 | 106.2 | .6 | 65.4 | 31.9 | 97.8 | 5.44 | 8.5 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 | 7 | 36.6 | 106.2 | 2.9 | 347.0 | 31.9 | 381.7 | 16.98 | 8.5 | 5420 | 5780 | 74 | 174 | 3 |
| 96 | 6 | 7 | 78.9 | 228.7 | 6.3 | 1060.5 | 68.6 | 1135.4 | 26.14 | 35.6 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 | 7 | 51.3 | 148.7 | 4.5 | 521.3 | 44.6 | 570.4 | 7.86 | 17.0 | 10840 | 4305 | 166 | 174 | 4 |
| 96 | 8 | 3 | 65.9 | 191.1 | 9.3 | 1080.5 | 57.3 | 1147.1 | 16.34 | 25.5 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 | 5 | 26.1 | 75.5 | .9 | 96.7 | 22.7 | 120.2 | 14.11 | 2.3 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 | 3 | 60.1 | 174.3 | 5.9 | 1009.6 | 52.3 | 1067.7 | 10.74 | 23.9 | 14116 | 6000 | 110 | 74 | 3 |
| 96 | 11 | 3 | 56.9 | 165.1 | 6.2 | 891.9 | 49.3 | 947.7 | 9.35 | 21.2 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 | 7 | 36.6 | 106.2 | 3.0 | 357.8 | 31.9 | 392.7 | 9.62 | 8.5 | 5420 | 6000 | 120 | 174 | 2 |
| 96 | 14 | 7 | 36.6 | 106.2 | 3.0 | 357.8 | 31.9 | 392.7 | 9.62 | 8.5 | 5420 | 6000 | 120 | 174 | 3 |

## TABLE 58 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | 1 | 4 | 36.9 | 106.9 | 3.3 | 273.3 | 32.1 | 308.7 | 1.29 | 8.1 | 5500 | 5300 | 823 | 250 | 4 |
| 215 | 2 | 4 | 35.5 | 103.0 | 3.7 | 186.6 | 30.9 | 221.4 | .52 | 6.7 | 5000 | 5100 | 1510 | 350 | 4 |
| 215 | 3 | 2 | 35.5 | 103.0 | 1.6 | 169.0 | 30.9 | 201.5 | 4.57 | 7.7 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 42.3 | 122.5 | 4.5 | 381.2 | 36.8 | 422.4 | 2.06 | 11.0 | 7500 | 5200 | 503 | 250 | 3 |
| 962 | 1 | 7 | 49.3 | 142.9 | 5.9 | 922.7 | 42.9 | 971.4 | 18.80 | 16.8 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 93.6 | 271.3 | 12.5 | 1901.4 | 81.4 | 1995.3 | 19.82 | 44.0 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 28.8 | 83.4 | .1 | 14.8 | 25.0 | 39.9 | 234.62 | 4.2 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 38.2 | 110.8 | .5 | 85.2 | 33.2 | 118.9 | 145.76 | 10.0 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 46.3 | 134.3 | 3.6 | 621.2 | 40.3 | 665.1 | 37.73 | 15.2 | 9000 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 31.7 | 92.0 | .5 | 72.2 | 27.6 | 100.3 | 8.38 | 5.8 | 3600 | 1800 | 127 | 150 | 4 |
| 962 | 7 | 7 | 49.0 | 142.1 | 5.8 | 914.1 | 42.6 | 962.5 | 17.18 | 16.6 | 10000 | 7780 | 52 | 100 | 4 |
| 962 | 8 | 7 | 89.5 | 259.6 | 14.9 | 2270.5 | 77.9 | 2363.2 | 32.31 | 41.5 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 26.1 | 75.5 | .3 | 24.5 | 22.7 | 47.4 | .63 | 2.4 | 1500 | 2040 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 27.4 | 79.5 | .3 | 38.2 | 23.8 | 62.4 | 1.06 | 3.2 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 28.8 | 83.4 | .5 | 40.2 | 25.0 | 65.7 | .57 | 3.8 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 28.8 | 83.4 | 1.0 | 85.4 | 25.0 | 111.4 | .56 | 3.8 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 39.6 | 114.7 | 3.0 | 234.1 | 34.4 | 271.4 | .95 | 9.6 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 36.3 | 105.3 | 3.7 | 299.2 | 31.6 | 334.5 | .60 | 8.0 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 39.3 | 113.9 | 5.1 | 373.2 | 34.2 | 412.5 | .93 | 9.2 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 162.4 | 471.0 | 42.2 | 3335.8 | 141.3 | 3519.3 | 1.81 | 76.4 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 67.9 | 196.9 | 4.6 | 325.6 | 59.1 | 389.2 | 3.43 | 23.9 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 27.4 | 79.5 | .3 | 46.3 | 23.8 | 70.4 | 17.39 | 3.3 | 2000 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 29.6 | 85.8 | 1.3 | 192.6 | 25.7 | 219.6 | 6.10 | 4.6 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 36.9 | 106.9 | 2.5 | 381.6 | 32.1 | 416.2 | 11.56 | 9.0 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 41.2 | 119.4 | 3.3 | 490.4 | 35.8 | 529.5 | 8.40 | 11.7 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 30.3 | 88.0 | .4 | 69.8 | 26.4 | 96.7 | 3.41 | 5.2 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 45.5 | 132.0 | 3.8 | 551.4 | 39.6 | 594.8 | 1.14 | 14.5 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 84.5 | 245.1 | 16.6 | 1365.1 | 73.5 | 1455.2 | 2.15 | 34.0 | 23159 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 29.2 | 84.7 | .4 | 57.6 | 25.4 | 83.4 | 2.28 | 4.4 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 40.7 | 118.1 | 1.8 | 231.8 | 35.4 | 269.0 | 7.17 | 11.1 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 27.4 | 79.5 | .9 | 140.6 | 23.8 | 165.3 | 52.49 | 3.3 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 38.5 | 111.6 | 3.5 | 382.7 | 33.5 | 419.7 | 1.33 | 9.5 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 43.3 | 125.7 | 4.3 | 519.3 | 37.7 | 561.2 | 1.78 | 12.6 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 30.1 | 87.3 | 1.7 | 166.7 | 26.2 | 194.6 | .62 | 4.7 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 27.4 | 79.5 | 1.0 | 99.9 | 23.8 | 124.8 | .40 | 3.2 | 2000 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 51.7 | 149.9 | 6.4 | 553.2 | 45.0 | 604.6 | 3.50 | 16.2 | 11000 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 66.6 | 193.0 | 11.1 | 797.0 | 57.9 | 865.9 | 3.88 | 23.2 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 37.4 | 108.4 | 3.2 | 290.7 | 32.5 | 326.4 | 5.49 | 8.4 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | 4 | 1 | 43.3 | 125.7 | 5.2 | 384.7 | 37.7 | 427.6 | 5.13 | 11.1 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 48.2 | 139.8 | 6.4 | 475.0 | 41.9 | 523.2 | 6.28 | 13.6 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 46.0 | 133.5 | 5.8 | 433.4 | 40.0 | 479.2 | 5.08 | 12.5 | 8900 | 5000 | 162 | 300 | 1 |

## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST | + FUEL COST | + OTHER COSTS | – ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFH | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 909 | 1 | 1 | 31.7 | 91.9 | 1.2 | 155.8 | 27.6 | 184.6 | 2.80 | 5.8 | 3586 | 4000 | 461 | 140 | 4 |
| 909 | 2 | 1 | 32.1 | 93.2 | 1.2 | 171.1 | 28.0 | 200.3 | 19.73 | 6.0 | 3755 | 4000 | 60 | 140 | 4 |
| 909 | 3 | 1 | 32.1 | 93.2 | 1.2 | 171.1 | 28.0 | 200.3 | 19.73 | 6.0 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 28.0 | 81.2 | .7 | 100.7 | 24.4 | 125.8 | 12.39 | 3.6 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 28.0 | 81.2 | .7 | 100.7 | 24.4 | 125.8 | 12.39 | 3.6 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 43.1 | 124.9 | 2.0 | 300.7 | 37.5 | 340.1 | 10.37 | 12.9 | 7601 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 28.0 | 81.2 | .8 | 130.1 | 24.4 | 155.3 | 3.80 | 3.7 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 53.4 | 154.9 | 4.7 | 673.1 | 46.5 | 724.3 | 8.68 | 19.0 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 32.9 | 95.4 | 1.6 | 257.3 | 28.6 | 287.5 | 60.22 | 6.7 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 32.9 | 95.4 | 1.6 | 257.3 | 28.6 | 287.5 | 60.22 | 6.7 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 32.9 | 95.4 | 1.6 | 257.3 | 28.6 | 287.5 | 60.22 | 6.7 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 43.6 | 126.4 | 2.8 | 453.6 | 37.9 | 494.4 | 53.48 | 13.3 | 8000 | 4860 | 17 | 100 | 2 |
| 964 | 5 | 5 | 31.5 | 91.2 | 1.4 | 222.2 | 27.4 | 250.9 | 19.70 | 5.8 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 43.6 | 126.4 | .5 | 82.9 | 37.9 | 121.3 | 4.37 | 13.5 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 31.5 | 91.2 | .1 | 13.7 | 27.4 | 41.1 | .73 | 5.9 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 38.2 | 110.8 | .5 | 84.3 | 33.2 | 118.1 | 9.84 | 10.0 | 6000 | 1260 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 88.2 | 255.6 | 14.1 | 2160.2 | 76.7 | 2250.9 | 213.20 | 40.7 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 47.7 | 138.2 | 5.5 | 830.5 | 41.5 | 877.4 | 20.67 | 15.7 | 9500 | 7488 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 140.8 | 408.3 | 16.0 | 1832.5 | 122.5 | 1971.0 | 1.47 | 70.6 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | 3 | 140.8 | 408.3 | 16.0 | 1832.5 | 122.5 | 1971.0 | 1.47 | 70.6 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 49.0 | 142.1 | 5.7 | 623.0 | 42.6 | 671.4 | 2.05 | 15.6 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 143.5 | 416.2 | 26.5 | 3015.5 | 124.8 | 3166.8 | 39.93 | 70.7 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 94.9 | 275.2 | 13.0 | 1815.4 | 82.6 | 1910.9 | 2.89 | 44.5 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 143.5 | 416.2 | 22.7 | 3147.3 | 124.8 | 3294.9 | 236.83 | 73.6 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 35.5 | 103.0 | .3 | 52.8 | 30.9 | 84.0 | 23.95 | 8.3 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 27.7 | 80.2 | .7 | 84.9 | 24.1 | 109.7 | 1.37 | 3.4 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 42.3 | 122.5 | 1.4 | 172.2 | 36.8 | 210.3 | 5.17 | 12.0 | 7500 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 38.7 | 112.2 | 3.2 | 407.2 | 33.7 | 444.0 | 3.90 | 9.9 | 6182 | 6000 | 226 | 150 | 2 |
| 45 | 2 | 5 | 73.3 | 212.6 | 12.7 | 1504.0 | 63.8 | 1580.5 | 4.41 | 30.1 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 39.6 | 114.7 | 3.0 | 378.6 | 34.4 | 415.9 | 4.27 | 10.4 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 49.0 | 142.1 | .2 | 21.8 | 42.6 | 64.6 | 31.44 | 16.3 | 10000 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 30.1 | 87.3 | .3 | 40.0 | 26.2 | 66.5 | 4.96 | 4.9 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 30.1 | 87.3 | .3 | 50.1 | 26.2 | 76.6 | 4.67 | 4.9 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 38.2 | 110.8 | 1.1 | 151.1 | 33.2 | 185.4 | 3.75 | 9.7 | 6000 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 49.2 | 142.6 | 1.9 | 232.8 | 42.8 | 277.5 | 1.26 | 16.2 | 10060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 47.0 | 136.3 | 2.9 | 398.9 | 40.9 | 442.7 | 3.85 | 15.1 | 9263 | 3850 | 233 | 125 | 3 |
| 249 | 7 | 4 | 41.7 | 121.0 | 1.2 | 172.1 | 36.3 | 209.6 | 4.20 | 11.9 | 7300 | 2100 | 246 | 120 | 4 |

## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 628 | 1 | 1 | 35.5 | 103.0 | .9 | 152.3 | 30.9 | 184.2 | 14.76 | 8.3 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 32.8 | 95.1 | 1.4 | 225.0 | 28.5 | 254.9 | 13.83 | 6.6 | 4000 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 26.1 | 75.5 | .5 | 83.6 | 22.7 | 106.8 | 13.90 | 2.5 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 67.9 | 196.9 | 7.1 | 815.5 | 59.1 | 881.7 | 6.23 | 26.7 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 67.9 | 196.9 | 7.1 | 820.7 | 59.1 | 886.8 | 8.61 | 26.7 | 17000 | 4380 | 123 | 170 | 2 |
| 799 | 4 | 2 | 40.9 | 118.6 | .9 | 114.5 | 35.6 | 151.0 | 4.86 | 11.1 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 26.8 | 77.7 | .1 | 14.5 | 23.3 | 38.0 | 1.92 | 2.8 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 70.5 | 204.4 | 6.3 | 759.3 | 61.3 | 826.9 | 9.34 | 28.5 | 17960 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 34.6 | 100.4 | .6 | 76.9 | 30.1 | 107.6 | 4.92 | 7.5 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 25.2 | 73.2 | .2 | 35.8 | 22.0 | 58.0 | 13.12 | 2.0 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 29.6 | 85.7 | 1.1 | 184.0 | 25.7 | 210.8 | 1.60 | 4.7 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 42.5 | 123.3 | 3.2 | 518.6 | 37.0 | 558.8 | 2.70 | 12.8 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 27.9 | 81.0 | .9 | 145.8 | 24.3 | 171.0 | 1.98 | 3.7 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 31.2 | 90.4 | 1.4 | 224.2 | 27.1 | 252.7 | 1.76 | 5.7 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 38.5 | 111.6 | 2.6 | 416.1 | 33.5 | 452.2 | 2.88 | 10.2 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 37.1 | 107.6 | 2.4 | 386.6 | 32.3 | 421.2 | 3.98 | 9.4 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 37.9 | 110.0 | 2.6 | 404.0 | 33.0 | 439.6 | 4.09 | 9.8 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 34.4 | 99.8 | 1.9 | 309.0 | 29.9 | 340.9 | 2.24 | 7.7 | 4600 | 6000 | 492 | 90 | 3 |
| 953 | 9 | 1 | 33.1 | 95.9 | 1.8 | 271.1 | 28.8 | 301.6 | 1.95 | 6.8 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 33.3 | 96.7 | 1.8 | 280.2 | 29.0 | 311.0 | 2.10 | 7.0 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 37.9 | 110.0 | 2.5 | 400.9 | 33.0 | 436.5 | 2.88 | 9.8 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 82.5 | 239.2 | .2 | 1566.7 | 71.8 | 1648.7 | 7.63 | 37.3 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 79.5 | 230.6 | 9.7 | 1488.4 | 69.2 | 1567.3 | 7.25 | 35.5 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 46.3 | 134.3 | 3.8 | 648.5 | 40.3 | 692.6 | 96.19 | 15.2 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 15 | 1 | 46.3 | 134.3 | 3.8 | 648.5 | 40.3 | 692.6 | 96.19 | 15.2 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 16 | 1 | 34.2 | 99.0 | 1.8 | 324.0 | 29.7 | 355.6 | 65.85 | 7.6 | 4500 | 6000 | 17 | 80 | 1 |
| 953 | 17 | 1 | 34.2 | 99.0 | 1.8 | 324.0 | 29.7 | 355.6 | 65.85 | 7.6 | 4500 | 6000 | 17 | 80 | 1 |
| 13 | 1 | 1 | 38.2 | 110.8 | 2.8 | 417.0 | 33.2 | 453.1 | 21.25 | 9.8 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 30.1 | 87.3 | 1.4 | 205.5 | 26.2 | 233.0 | 6.97 | 4.9 | 3000 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 35.5 | 103.0 | 2.3 | 350.3 | 30.9 | 383.4 | 21.61 | 8.2 | 5000 | 6000 | 59 | 110 | 2 |
| 13 | 4 | 1 | 30.1 | 87.3 | 1.3 | 209.6 | 26.2 | 237.0 | 8.72 | 5.0 | 3000 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 46.3 | 134.3 | 4.4 | 616.3 | 40.3 | 661.0 | 10.30 | 14.6 | 9000 | 6000 | 119 | 130 | 1 |
| 13 | 6 | 2 | 51.7 | 149.9 | 5.3 | 766.4 | 45.0 | 816.7 | 32.48 | 18.0 | 11000 | 6000 | 38 | 120 | 2 |
| 184 | 1 | 1 | 34.1 | 98.8 | 1.4 | 200.4 | 29.6 | 231.5 | 4.26 | 7.3 | 4470 | 4000 | 233 | 125 | 4 |
| 184 | 2 | 1 | 28.2 | 81.9 | .7 | 81.9 | 24.6 | 107.2 | .36 | 3.8 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 3 | 1 | 28.2 | 81.9 | .7 | 81.9 | 24.6 | 107.2 | .56 | 3.8 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 4 | 1 | 31.7 | 92.0 | 1.2 | 138.5 | 27.6 | 167.3 | .88 | 5.8 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 43.6 | 126.4 | 1.9 | 266.8 | 37.9 | 306.7 | 3.15 | 13.1 | 8000 | 3000 | 407 | 120 | 3 |

## TABLE 58 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITHOUT HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 431 | 1 | 7 | 34.2 | 99.1 | .5 | 61.1 | 29.7 | 91.3 | 31.95 | 6.9 | 4305 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 34.2 | 99.1 | .5 | 59.0 | 29.7 | 89.3 | 21.09 | 7.0 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 43.6 | 126.4 | 1.9 | 213.5 | 37.9 | 253.3 | 12.07 | 12.4 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 49.2 | 142.6 | .7 | 88.0 | 42.8 | 131.5 | 15.42 | 16.0 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 54.4 | 157.8 | 2.3 | 324.5 | 47.3 | 374.1 | 11.35 | 19.6 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 28.1 | 81.4 | .2 | 18.4 | 24.4 | 43.0 | 10.54 | 3.5 | 2250 | 772 | 180 | 200 | 3 |
| 431 | 7 | 5 | 26.3 | 76.3 | .5 | 82.4 | 22.9 | 105.8 | 2.63 | 2.6 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 34.0 | 98.5 | 2.7 | 394.6 | 29.5 | 426.8 | 3.05 | 7.2 | 4430 | 8000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 34.0 | 98.5 | 2.7 | 394.6 | 29.5 | 426.8 | 3.05 | 7.2 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 174.0 | 504.6 | 17.7 | 2464.5 | 151.4 | 2633.5 | 5.34 | 92.8 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 174.0 | 504.6 | 17.7 | 2464.5 | 151.4 | 2633.5 | 5.34 | 92.8 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 174.0 | 504.6 | 8.9 | 1253.6 | 151.4 | 1413.9 | 11.16 | 92.8 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 174.0 | 504.6 | 8.9 | 1253.6 | 151.4 | 1413.9 | 11.16 | 92.8 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 57.1 | 165.6 | 7.6 | 1000.5 | 49.7 | 1057.7 | 2.70 | 21.1 | 13000 | 7060 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 74.1 | 214.9 | 11.4 | 1488.3 | 64.5 | 1564.1 | 2.79 | 31.3 | 19300 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 40.9 | 118.6 | 4.0 | 537.0 | 35.6 | 576.5 | 2.57 | 11.4 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 119.2 | 345.7 | 21.7 | 2889.9 | 103.7 | 3015.4 | 15.38 | 58.4 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 138.1 | 400.5 | 26.1 | 3453.2 | 120.1 | 3599.5 | 16.07 | 69.8 | 43000 | 7000 | 61 | 130 | 3 |

# TABLE 59

## CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

## (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1042 | 1 | 7 | 59.3 | 124.6 | 5.2 | 33.3 | 37.4 | 75.9 | .3 | 5.90 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 | 7 | 111.7 | 234.6 | 19.2 | 0.0 | 70.4 | 89.5 | .0 | 16.24 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 | 3 | 46.3 | 97.1 | 3.7 | 20.3 | 29.1 | 53.1 | .1 | 3.83 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 | 1 | 35.5 | 74.5 | 1.4 | 21.4 | 22.3 | 45.1 | 3.1 | 1.62 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 | 1 | 35.5 | 74.5 | 1.2 | 19.6 | 22.3 | 43.1 | 30.9 | 1.62 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 | 1 | 35.5 | 74.5 | .8 | 25.0 | 22.3 | 48.2 | 3.3 | 1.87 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 | 1 | 35.5 | 74.5 | .8 | 25.0 | 22.3 | 48.2 | 3.3 | 1.87 | 1100 | 6760 | 556 | 72 | 4 |
| 904 | 5 | 1 | 35.5 | 74.5 | .8 | 24.9 | 22.3 | 48.0 | 3.3 | 1.87 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 | 7 | 30.9 | 64.8 | .4 | 6.2 | 19.4 | 26.0 | 9.2 | .73 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 | 3 | 42.4 | 89.0 | .9 | 25.0 | 26.7 | 52.6 | 8.1 | 3.35 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 | 7 | 33.2 | 69.6 | .3 | 3.8 | 20.9 | 25.0 | .7 | 1.28 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 | 7 | 38.6 | 81.0 | 1.2 | 6.4 | 24.3 | 31.8 | .2 | 2.40 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 | 7 | 46.3 | 97.1 | 2.4 | 48.1 | 29.1 | 79.7 | 7.0 | 3.87 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 | 7 | 46.3 | 97.1 | 1.5 | 28.6 | 29.1 | 59.2 | 8.4 | 3.83 | 2500 | 3600 | 125 | 200 | 2 |
| 1101 | 9 | 7 | 28.9 | 60.7 | .2 | 0.0 | 18.2 | 18.4 | .3 | .38 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 | 3 | 165.6 | 347.8 | 26.7 | 308.8 | 104.3 | 439.8 | .6 | 26.45 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 | 3 | 96.3 | 202.2 | 13.0 | 154.4 | 60.7 | 228.1 | .6 | 13.23 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 | 3 | 80.9 | 169.9 | 10.0 | 114.9 | 51.0 | 175.9 | .5 | 10.29 | 7000 | 7200 | 493 | 250 | 2 |
| 581 | 1 | 1 | 48.6 | 102.0 | 2.8 | 34.4 | 30.6 | 67.8 | .4 | 4.29 | 2800 | 5960 | 1053 | 200 | 3 |
| 581 | 2 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 3 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 4 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 3 |
| 581 | 5 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 6 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.63 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 7 | 8 | 123.7 | 259.8 | 13.3 | 162.4 | 77.9 | 253.7 | .4 | 19.26 | 12560 | 5960 | 801 | 200 | 2 |
| 581 | 8 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 9 | 1 | 123.1 | 258.5 | 13.2 | 160.9 | 77.6 | 251.6 | .4 | 19.14 | 12480 | 5960 | 806 | 200 | 2 |
| 581 | 10 | 2 | 188.7 | 396.3 | 22.3 | 360.9 | 118.9 | 502.0 | 1.5 | 32.21 | 21000 | 5880 | 434 | 200 | 1 |
| 581 | 11 | 4 | 45.5 | 95.5 | 2.4 | 20.6 | 28.7 | 51.6 | .3 | 3.66 | 2400 | 5960 | 1777 | 200 | 2 |
| 581 | 12 | 4 | 45.5 | 95.5 | 2.4 | 20.6 | 28.7 | 51.6 | .3 | 3.68 | 2400 | 5960 | 1777 | 200 | 3 |
| 581 | 13 | 4 | 106.8 | 224.4 | 10.9 | 156.0 | 67.3 | 234.2 | .7 | 15.90 | 10370 | 5960 | 625 | 200 | 2 |
| 581 | 14 | 4 | 71.4 | 149.8 | 5.9 | 75.8 | 45.0 | 126.6 | .5 | 8.83 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 | 1 | 71.4 | 149.8 | 5.9 | 49.5 | 45.0 | 100.4 | .2 | 8.83 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 | 4 | 48.6 | 102.0 | 2.8 | 34.4 | 30.6 | 67.8 | .4 | 4.29 | 2800 | 5960 | 1053 | 200 | 3 |
| 702 | 4 | 8 | 123.7 | 259.8 | 13.3 | 162.4 | 77.9 | 253.7 | .4 | 19.26 | 12560 | 5960 | 801 | 200 | 2 |
| 702 | 5 | 4 | 106.8 | 224.4 | 10.9 | 156.0 | 67.3 | 234.2 | .7 | 15.90 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 | 5 | 71.4 | 149.8 | 5.9 | 75.8 | 45.0 | 126.6 | .5 | 8.83 | 5760 | 5960 | 730 | 200 | 2 |

# TABLE 59 (Continued)

## CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

## (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST | + | FUEL COST | + | OTHER COSTS | = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 589 | 1 | 7 | 46.3 | 97.1 | 1.7 | | 30.9 | | 29.1 | | 61.7 | 1.3 | 3.95 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 | 7 | 53.2 | 111.8 | 2.7 | | 43.0 | | 33.5 | | 79.2 | 1.9 | 5.13 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 | 7 | 53.8 | 113.0 | 2.3 | | 37.9 | | 33.9 | | 74.2 | .7 | 5.50 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 | 7 | 51.0 | 107.2 | 2.5 | | 41.2 | | 32.1 | | 75.8 | 3.2 | 4.71 | 3120 | 4410 | 167 | 220 | 1 |
| 589 | 5 | 7 | 41.1 | 86.3 | 1.4 | | 6.2 | | 25.9 | | 33.4 | .2 | 2.78 | 1828 | 4410 | 1606 | 210 | 1 |
| 589 | 6 | 7 | 44.6 | 93.8 | .2 | | 3.5 | | 28.1 | | 31.8 | 2.4 | 3.63 | 2292 | 675 | 824 | 160 | 1 |
| | | | | | | | | | | | | | | | | | | |
| 1126 | 1 | 1 | 46.3 | 97.1 | .3 | | 7.0 | | 29.1 | | 36.5 | 2.7 | 4.12 | 2500 | 1000 | 586 | 110 | 4 |
| 1126 | 2 | 1 | 50.1 | 105.2 | 2.0 | | 38.0 | | 31.6 | | 71.5 | .7 | 4.91 | 3000 | 5000 | 670 | 120 | 4 |
| 1126 | 3 | 1 | 46.3 | 97.1 | .5 | | 9.0 | | 29.1 | | 38.6 | 1.2 | 4.12 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 | 1 | 104.0 | 218.4 | 6.7 | | 157.6 | | 65.5 | | 229.8 | 1.6 | 16.49 | 10000 | 5000 | 242 | 110 | 4 |
| 1126 | 5 | 1 | 65.5 | 137.6 | 3.1 | | 63.5 | | 41.3 | | 107.9 | .7 | 8.24 | 5000 | 4800 | 610 | 110 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 103 | 1 | 1 | 46.3 | 97.1 | .9 | | 23.4 | | 29.1 | | 53.4 | 5.0 | 4.15 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 | 1 | 65.5 | 137.6 | 3.5 | | 90.0 | | 41.3 | | 134.8 | 2.2 | 8.31 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 | 1 | 52.9 | 111.2 | 3.2 | | 45.6 | | 33.4 | | 82.2 | .5 | 5.28 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 | 1 | 65.5 | 137.6 | 4.3 | | 93.7 | | 41.3 | | 139.3 | 1.8 | 8.05 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 | 1 | 78.6 | 165.0 | 6.7 | | 124.6 | | 49.5 | | 180.8 | 1.6 | 10.49 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 | 3 | 104.0 | 218.4 | 4.6 | | 98.0 | | 65.5 | | 168.1 | 5.0 | 15.98 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 | 4 | 46.3 | 97.1 | 1.2 | | 25.7 | | 29.1 | | 56.1 | 2.0 | 3.99 | 2500 | 3450 | 344 | 150 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 865 | 1 | 1 | 42.4 | 89.0 | .6 | | 11.9 | | 26.7 | | 39.2 | 2.5 | 3.22 | 2000 | 2036 | 251 | 140 | 4 |
| 865 | 2 | 1 | 70.1 | 147.3 | 1.6 | | 32.7 | | 44.2 | | 78.5 | 1.2 | 9.18 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 | 1 | 42.8 | 90.0 | .4 | | 7.0 | | 27.0 | | 34.3 | 1.1 | 3.47 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 | 1 | 62.4 | 131.1 | 1.3 | | 28.9 | | 39.3 | | 69.5 | 1.5 | 7.57 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 | 2 | 194.1 | 407.6 | 3.6 | | 71.9 | | 122.3 | | 197.7 | .8 | 36.61 | 21700 | 1321 | 534 | 80 | 4 |
| | | | | | | | | | | | | | | | | | | |
| 715 | 1 | 2 | 141.2 | 296.6 | 15.3 | | 333.7 | | 89.0 | | 438.0 | 4.5 | 23.79 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 | 1 | 58.4 | 122.7 | 2.9 | | 60.8 | | 36.8 | | 100.6 | .8 | 6.71 | 4083 | 5481 | 636 | 115 | 2 |
| 715 | 3 | 1 | 62.5 | 131.3 | 2.1 | | 39.7 | | 39.4 | | 81.2 | 1.2 | 7.34 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 | 1 | 55.7 | 116.9 | .0 | | .5 | | 35.1 | | 35.5 | 16.6 | 6.06 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 | 1 | 68.7 | 144.3 | 4.3 | | 101.5 | | 43.3 | | 149.1 | 1.1 | 8.97 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 | 1 | 93.7 | 196.7 | 7.1 | | 169.7 | | 59.0 | | 235.8 | 1.7 | 14.27 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 | 3 | 187.0 | 392.7 | 17.7 | | 261.6 | | 117.8 | | 397.1 | .7 | 32.13 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 | 3 | 152.3 | 319.7 | 17.2 | | 245.2 | | 95.9 | | 358.3 | .6 | 25.15 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 | 7 | 90.6 | 190.3 | 8.4 | | 88.5 | | 57.1 | | 154.0 | .9 | 11.62 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 | 5 | 98.4 | 206.7 | 7.7 | | 170.5 | | 62.0 | | 240.2 | 9.0 | 14.82 | 9276 | 5491 | 44 | 150 | 2 |
| | | | | | | | | | | | | | | | | | | |
| 425 | 1 | 1 | 75.5 | 158.6 | 3.4 | | 65.2 | | 47.6 | | 116.1 | 1.0 | 10.14 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 | 1 | 71.7 | 150.5 | 5.0 | | 95.4 | | 45.1 | | 145.6 | .8 | 9.34 | 5800 | 6000 | 427 | 140 | 3 |
| 425 | 3 | 1 | 74.7 | 157.0 | 2.3 | | 44.9 | | 47.1 | | 94.3 | 1.2 | 9.98 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 | 1 | 74.7 | 157.0 | 4.0 | | 76.0 | | 47.1 | | 127.0 | .9 | 9.78 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 | 1 | 67.8 | 142.4 | 3.5 | | 65.2 | | 42.7 | | 111.4 | .8 | 8.53 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 | 1 | 105.5 | 221.6 | 6.8 | | 139.7 | | 66.5 | | 213.0 | 1.6 | 16.42 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 | 2 | 91.7 | 192.5 | 3.3 | | 33.4 | | 57.8 | | 94.5 | .5 | 12.61 | 8460 | 2100 | 798 | 225 | 3 |

## TABLE 59 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 425 | 8 | 2 | 85.5 | 179.6 | 7.9 | 82.5 | 53.9 | 144.3 | .4 | 11.41 | 7600 | 5600 | 882 | 225 | 4 |
| 425 | 9 | 2 | 88.6 | 186.1 | 11.1 | 118.5 | 55.8 | 165.4 | .3 | 12.01 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 | 2 | 92.5 | 194.1 | 10.3 | 123.5 | 58.2 | 192.1 | .5 | 12.76 | 8500 | 6500 | 789 | 225 | 4 |
| 425 | 11 | 2 | 94.0 | 197.4 | 2.0 | 20.1 | 59.2 | 81.3 | .8 | 13.06 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 | 5 | 88.6 | 186.1 | 12.5 | 167.7 | 55.8 | 236.0 | 1.1 | 11.76 | 8000 | 7800 | 277 | 250 | 4 |
| 425 | 13 | 5 | 88.6 | 186.1 | 12.5 | 167.7 | 55.8 | 236.0 | 1.1 | 11.76 | 8000 | 7800 | 277 | 250 | 2 |
| 425 | 14 | 3 | 61.7 | 129.5 | 4.5 | 63.2 | 38.8 | 106.5 | .6 | 6.90 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 | 1 | 142.5 | 299.3 | 9.0 | 192.7 | 89.8 | 291.5 | 2.8 | 24.15 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 | 1 | 73.2 | 153.7 | 3.1 | 61.9 | 46.1 | 111.1 | 1.2 | 9.66 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 | 1 | 96.3 | 202.2 | 4.8 | 98.7 | 60.7 | 164.1 | 1.7 | 14.49 | 9000 | 3600 | 268 | 140 | 4 |
| 984 | 4 | 1 | 61.7 | 129.5 | 1.9 | 35.8 | 38.8 | 76.5 | 1.0 | 7.25 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 | 1 | 73.2 | 153.7 | 2.7 | 53.3 | 46.1 | 102.1 | 1.3 | 9.66 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 | 2 | 204.1 | 428.6 | 20.5 | 297.0 | 128.6 | 446.1 | 1.4 | 34.54 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 | 2 | 104.0 | 218.4 | 7.3 | 85.0 | 65.5 | 157.9 | .5 | 15.02 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 | 2 | 134.8 | 283.1 | 8.3 | 110.5 | 84.9 | 203.7 | .9 | 21.02 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 | 2 | 80.9 | 169.9 | 3.5 | 35.5 | 51.0 | 90.0 | .5 | 10.51 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 | 2 | 134.8 | 283.1 | 8.5 | 114.1 | 84.9 | 207.5 | .9 | 21.02 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 | 2 | 202.6 | 425.4 | 15.9 | 230.1 | 127.6 | 373.6 | 1.5 | 34.24 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 | 2 | 57.8 | 121.4 | 1.6 | 25.7 | 36.4 | 63.7 | 3.3 | 6.01 | 4000 | 2200 | 228 | 225 | 4 |
| 984 | 13 | 4 | 67.0 | 140.8 | 3.7 | 56.3 | 42.2 | 102.2 | .5 | 8.31 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 | 3 | 115.6 | 242.7 | 6.0 | 82.3 | 72.8 | 161.2 | .4 | 18.37 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 | 3 | 70.9 | 148.9 | 5.2 | 32.3 | 44.7 | 82.1 | .1 | 9.07 | 5700 | 6000 | 1325 | 155 | 4 |
| 984 | 16 | 5 | 91.7 | 192.5 | 10.4 | 133.1 | 57.8 | 201.3 | 2.8 | 11.92 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 | 5 | 115.6 | 242.7 | 14.5 | 219.3 | 72.8 | 306.5 | 4.3 | 16.98 | 11500 | 6300 | 79 | 245 | 3 |
| 984 | 18 | 5 | 125.6 | 263.7 | 15.6 | 202.1 | 79.1 | 296.8 | 1.7 | 18.48 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 | 2 | 204.1 | 428.6 | 9.8 | 206.0 | 126.6 | 344.4 | 1.3 | 37.62 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 | 2 | 87.8 | 184.4 | 3.0 | 48.8 | 55.3 | 107.2 | .4 | 13.13 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 | 2 | 281.1 | 590.3 | 11.2 | 263.6 | 177.1 | 451.9 | 2.1 | 54.83 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 | 5 | 59.3 | 124.6 | 2.1 | 48.4 | 37.4 | 87.9 | 1.0 | 6.98 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 | 5 | 100.9 | 211.9 | 5.4 | 154.0 | 63.6 | 223.0 | 2.2 | 16.32 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 | 5 | 59.3 | 124.6 | 1.3 | 30.3 | 37.4 | 69.0 | 1.3 | 6.98 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 | 5 | 59.3 | 124.6 | 1.3 | 30.3 | 37.4 | 69.0 | 1.3 | 6.98 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 | 5 | 412.0 | 865.2 | 41.2 | 1025.5 | 259.6 | 1326.3 | 4.4 | 83.07 | 50000 | 6000 | 94 | 100 | 2 |
| 671 | 9 | 4 | 97.8 | 205.5 | 4.8 | 48.3 | 61.6 | 114.7 | .4 | 14.11 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 | 4 | 119.4 | 250.7 | 6.0 | 116.2 | 75.2 | 197.3 | .5 | 20.17 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 | 4 | 98.6 | 207.1 | 4.8 | 75.8 | 62.1 | 142.8 | .3 | 15.45 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 | 4 | 141.3 | 296.8 | 8.3 | 167.2 | 89.0 | 264.5 | .6 | 24.77 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 | 4 | 181.0 | 380.1 | 11.9 | 184.1 | 114.0 | 310.1 | .8 | 31.18 | 20000 | 3500 | 488 | 180 | 3 |
| 671 | 14 | 4 | 304.2 | 638.8 | 31.3 | 529.8 | 191.6 | 752.8 | 1.4 | 56.13 | 36000 | 5000 | 271 | 180 | 2 |
| 302 | 1 | 1 | 46.3 | 97.1 | 3.2 | 69.2 | 29.1 | 101.5 | 4.3 | 3.96 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 | 1 | 46.3 | 97.1 | 3.2 | 72.1 | 29.1 | 104.4 | 41.2 | 3.96 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 | 1 | 63.2 | 132.7 | 6.1 | 128.1 | 39.8 | 174.0 | 2.9 | 7.45 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 | 1 | 51.3 | 107.8 | 4.1 | 82.3 | 32.3 | 118.6 | 1.7 | 5.01 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 | 1 | 43.6 | 91.6 | 2.7 | 53.0 | 27.5 | 83.2 | 1.2 | 3.42 | 2160 | 8544 | 639 | 160 | 2 |

## TABLE 59 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 233 | 1 | 1 | 48.1 | 100.9 | 2.2 | 58.1 | 30.3 | 90.5 | 1.5 | 4.58 | 2735 | 6738 | 250 | 90 | 4 |
| 233 | 2 | 1 | 59.3 | 124.6 | 3.7 | 90.7 | 37.4 | 131.7 | 1.4 | 6.98 | 4200 | 6952 | 200 | 100 | 4 |
| 233 | 3 | 1 | 44.7 | 93.9 | .6 | 12.5 | 28.2 | 41.2 | 2.6 | 3.75 | 2300 | 1026 | 350 | 125 | 3 |
| 233 | 4 | 1 | 108.6 | 228.1 | 8.2 | 189.3 | 68.4 | 265.9 | 1.9 | 17.37 | 10600 | 5600 | 225 | 110 | 2 |
| 233 | 5 | 3 | 265.7 | 558.0 | 19.4 | 119.0 | 167.4 | 305.8 | .1 | 49.92 | 31000 | 4082 | 1400 | 140 | 3 |
| 233 | 6 | 3 | 612.2 | 1285.6 | 16.4 | 311.2 | 385.7 | 713.3 | .8 | 126.95 | 76000 | 1504 | 621 | 93 | 2 |
| 449 | 1 | 3 | 40.1 | 84.2 | .6 | 0.0 | 25.3 | 25.8 | .2 | 2.63 | 1700 | 2163 | 2661 | 190 | 4 |
| 449 | 2 | 1 | 54.7 | 114.9 | 3.0 | 27.1 | 34.5 | 64.5 | .3 | 5.47 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 | 1 | 54.7 | 114.9 | 2.8 | 24.9 | 34.5 | 62.1 | .3 | 5.47 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 | 1 | 54.7 | 114.9 | 2.5 | 23.4 | 34.5 | 60.4 | .3 | 5.47 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 | 1 | 56.6 | 119.0 | 2.6 | 15.4 | 35.7 | 53.7 | .2 | 5.78 | 3850 | 3757 | 1157 | 225 | 1 |
| 449 | 6 | 1 | 35.9 | 75.5 | .1 | .3 | 22.6 | 23.0 | 2.7 | 1.78 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 | 1 | 54.7 | 114.9 | 2.5 | 22.8 | 34.5 | 59.7 | .3 | 5.47 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 | 1 | 54.7 | 114.9 | 1.8 | 25.0 | 34.5 | 61.3 | .4 | 5.09 | 3600 | 3011 | 875 | 120 | 4 |
| 449 | 9 | 1 | 54.7 | 114.9 | 3.1 | 26.0 | 34.5 | 63.5 | .3 | 5.43 | 3600 | 4770 | 875 | 220 | 4 |
| 205 | 1 | 2 | 181.0 | 380.1 | 10.8 | 148.1 | 114.0 | 273.0 | .8 | 30.67 | 20000 | 3000 | 547 | 200 | 3 |
| 205 | 2 | 2 | 181.0 | 380.1 | 13.0 | 197.3 | 114.0 | 324.3 | 1.1 | 30.67 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 | 2 | 47.8 | 100.4 | 1.9 | 19.3 | 30.1 | 51.2 | .4 | 4.14 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 | 2 | 47.8 | 100.4 | 1.2 | 0.0 | 30.1 | 31.3 | .2 | 4.14 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 | 2 | 47.8 | 100.4 | 2.8 | 19.7 | 30.1 | 52.6 | .2 | 4.14 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 | 3 | 128.6 | 270.1 | 13.9 | 218.3 | 81.0 | 313.2 | .5 | 20.80 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 | 3 | 127.1 | 266.9 | 12.0 | 221.3 | 80.1 | 313.3 | .5 | 21.27 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 | 3 | 127.1 | 266.9 | 12.0 | 204.4 | 80.1 | 296.5 | .4 | 21.27 | 13000 | 6600 | 602 | 120 | 4 |
| 891 | 8 | 3 | 150.2 | 315.4 | 14.9 | 263.3 | 94.6 | 372.8 | .5 | 26.17 | 16000 | 6600 | 542 | 120 | 1 |
| 676 | 1 | 1 | 74.4 | 156.1 | 4.1 | 90.1 | 46.8 | 141.0 | 4.2 | 9.82 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 | 1 | 108.2 | 227.3 | 7.2 | 157.7 | 68.2 | 233.1 | 7.0 | 16.85 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 | 1 | 62.8 | 131.8 | 3.1 | 66.9 | 39.5 | 109.5 | 3.3 | 7.42 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 | 1 | 62.8 | 131.8 | 3.1 | 66.9 | 39.5 | 109.5 | 3.3 | 7.42 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 | 4 | 111.7 | 234.6 | 5.0 | 107.2 | 70.4 | 182.6 | 4.4 | 17.57 | 11000 | 3000 | 109 | 150 | 2 |
| 333 | 1 | 3 | 104.0 | 218.4 | 2.6 | 65.7 | 65.5 | 133.9 | 19.2 | 16.36 | 10000 | 1905 | 37 | 120 | 4 |
| 786 | 1 | 1 | 82.4 | 173.1 | 8.3 | 133.4 | 51.9 | 193.6 | 2.3 | 10.06 | 7200 | 6240 | 142 | 220 | 3 |
| 786 | 2 | 1 | 82.4 | 173.1 | 8.3 | 135.0 | 51.9 | 195.2 | 2.6 | 10.66 | 7200 | 6240 | 142 | 220 | 4 |
| 786 | 3 | 1 | 66.3 | 139.2 | 4.7 | 78.7 | 41.8 | 125.2 | 3.2 | 7.69 | 5100 | 5100 | 129 | 220 | 4 |
| 786 | 4 | 4 | 104.0 | 218.4 | 5.8 | 93.9 | 65.5 | 165.2 | 3.3 | 15.00 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 | 3 | 126.5 | 265.7 | 13.1 | 186.0 | 79.7 | 278.8 | 1.0 | 19.49 | 13926 | 5400 | 302 | 220 | 2 |
| 645 | 4 | 3 | 103.4 | 217.2 | 10.4 | 150.3 | 65.2 | 225.9 | 1.5 | 14.77 | 9927 | 5400 | 203 | 236 | 4 |
| 645 | 5 | 7 | 111.1 | 233.4 | 11.3 | 171.5 | 70.0 | 252.8 | 2.0 | 16.34 | 10726 | 5400 | 167 | 230 | 4 |

## TABLE 59 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645 | 6 | 7 | 113.8 | 239.0 | 10.4 | 188.5 | 71.7 | 270.6 | 2.7 | 17.46 | 11275 | 5400 | 117 | 100 | 4 |
| 645 | 7 | 7 | 141.0 | 296.2 | 56.8 | 63.9 | 88.8 | 209.6 | .7 | 0.00 | 14009 | 5400 | 293 | 931 | 2 |
| 645 | 8 | 7 | 142.3 | 298.9 | 15.3 | 221.5 | 89.7 | 326.5 | 1.1 | 22.57 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 | 7 | 81.6 | 171.5 | 5.4 | 104.1 | 51.4 | 161.0 | .8 | 11.50 | 7097 | 5400 | 420 | 132 | 4 |
| 645 | 10 | 7 | 80.3 | 168.6 | 6.1 | 95.9 | 50.6 | 152.5 | .7 | 10.79 | 6919 | 5400 | 439 | 100 | 4 |
| 645 | 11 | 7 | 126.4 | 265.5 | 9.4 | 228.9 | 79.7 | 317.9 | 2.5 | 21.31 | 12915 | 5400 | 141 | 109 | 4 |
| 246 | 1 | 1 | 96.3 | 202.2 | 6.4 | 136.9 | 60.7 | 203.9 | 1.8 | 14.55 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 | 1 | 96.3 | 202.2 | 6.4 | 136.9 | 60.7 | 203.9 | 1.8 | 14.55 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 | 1 | 96.3 | 202.2 | 5.5 | 117.3 | 60.7 | 183.5 | 1.8 | 14.55 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 | 1 | 96.3 | 202.2 | 6.4 | 136.9 | 60.7 | 203.9 | 1.8 | 14.55 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 | 1 | 96.3 | 202.2 | 6.0 | 128.5 | 60.7 | 195.1 | 1.8 | 14.55 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 | 1 | 96.3 | 202.2 | 7.3 | 156.4 | 60.7 | 224.4 | 1.7 | 14.55 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 | 4 | 122.5 | 257.2 | 10.4 | 182.4 | 77.2 | 270.0 | .7 | 19.81 | 12400 | 5500 | 383 | 150 | 3 |
| 508 | 1 | 5 | 69.4 | 145.6 | 5.2 | 84.2 | 43.7 | 133.1 | .6 | 8.72 | 5500 | 6166 | 691 | 160 | 3 |
| 508 | 2 | 5 | 127.1 | 266.9 | 10.4 | 194.6 | 80.1 | 285.1 | .8 | 20.93 | 13000 | 5403 | 496 | 140 | 3 |
| 508 | 3 | 2 | 57.8 | 121.4 | 3.1 | 30.0 | 36.4 | 69.5 | .4 | 6.01 | 4000 | 4191 | 1000 | 225 | 4 |
| 508 | 4 | 6 | 128.6 | 270.1 | 1.9 | 35.4 | 81.0 | 118.3 | 1.8 | 21.26 | 13200 | 971 | 571 | 140 | 4 |
| 508 | 5 | 2 | 219.5 | 461.0 | 11.6 | 258.7 | 138.3 | 408.6 | 1.5 | 41.22 | 25000 | 3357 | 275 | 110 | 4 |
| 508 | 6 | 2 | 385.1 | 808.6 | 19.7 | 458.7 | 242.6 | 721.0 | 1.5 | 77.55 | 46500 | 3150 | 478 | 95 | 3 |
| 508 | 7 | 2 | 392.8 | 824.8 | 30.7 | 615.3 | 247.4 | 893.4 | 1.2 | 77.40 | 47500 | 4340 | 414 | 125 | 1 |
| 508 | 8 | 1 | 54.7 | 114.9 | .8 | 14.6 | 34.5 | 49.8 | 1.7 | 5.80 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 6.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 | 1 | 73.2 | 153.7 | 7.4 | 76.2 | 46.1 | 129.7 | .8 | 8.43 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 | 4 | 104.0 | 218.4 | 12.6 | 80.3 | 65.5 | 158.4 | .3 | 14.06 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 | 4 | 104.0 | 218.4 | 12.6 | 158.3 | 65.5 | 236.4 | 4.5 | 14.06 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 | 7 | 68.7 | 144.3 | 3.8 | 74.6 | 43.3 | 121.7 | 3.7 | 8.49 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 | 7 | 68.7 | 144.3 | 3.2 | 65.9 | 43.3 | 112.4 | 8.4 | 8.49 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 | 7 | 79.2 | 166.3 | 4.7 | 101.3 | 49.9 | 155.9 | 1.9 | 10.75 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 | 7 | 68.7 | 144.3 | 1.0 | 17.9 | 43.3 | 62.2 | 3.5 | 8.49 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 | 7 | 68.7 | 144.3 | 5.0 | 102.0 | 43.3 | 150.3 | 6.7 | 8.49 | 5420 | 5780 | 74 | 174 | 3 |
| 96 | 6 | 7 | 189.2 | 397.2 | 10.9 | 314.1 | 119.2 | 444.1 | 10.2 | 35.61 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 | 7 | 110.5 | 232.0 | 7.8 | 149.6 | 69.6 | 226.7 | 3.1 | 16.98 | 10840 | 4385 | 166 | 174 | 4 |
| 96 | 8 | 3 | 152.2 | 319.6 | 16.2 | 317.5 | 95.9 | 429.6 | 6.1 | 25.48 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 | 5 | 38.6 | 81.0 | 1.5 | 28.2 | 24.3 | 54.0 | 6.3 | 2.29 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 | 3 | 135.6 | 284.9 | 10.2 | 293.5 | 85.5 | 389.2 | 3.9 | 23.91 | 14110 | 6000 | 118 | 74 | 3 |
| 96 | 11 | 3 | 126.6 | 265.9 | 10.8 | 258.1 | 79.8 | 348.7 | 3.4 | 21.17 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 | 7 | 68.7 | 144.3 | 5.2 | 103.5 | 43.3 | 152.0 | 3.7 | 8.49 | 5420 | 6000 | 120 | 174 | 2 |
| 96 | 14 | 7 | 68.7 | 144.3 | 5.2 | 103.5 | 43.3 | 152.0 | 3.7 | 8.49 | 5420 | 6000 | 120 | 174 | 3 |

## TABLE 59 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPH | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | 1 | 4 | 69.4 | 145.6 | 5.7 | 59.5 | 43.7 | 108.9 | .5 | 8.08 | 5500 | 5300 | 823 | 250 | 4 |
| 215 | 2 | 4 | 65.5 | 137.6 | 6.4 | 16.0 | 41.3 | 63.7 | .1 | 6.71 | 5000 | 5100 | 1510 | 350 | 4 |
| 215 | 3 | 2 | 65.5 | 137.6 | 2.7 | 46.6 | 41.3 | 90.6 | 2.1 | 7.67 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 84.8 | 178.0 | 7.8 | 95.1 | 53.4 | 156.3 | .8 | 11.02 | 7500 | 5200 | 503 | 250 | 3 |
| 962 | 1 | 7 | 104.8 | 220.0 | 10.2 | 272.0 | 66.0 | 348.1 | 6.7 | 16.78 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 231.1 | 485.2 | 21.7 | 560.9 | 145.6 | 728.2 | 7.2 | 44.03 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 46.3 | 97.1 | .2 | 4.4 | 29.1 | 33.7 | 198.3 | 4.15 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 73.2 | 153.7 | .9 | 25.5 | 46.1 | 72.5 | 88.9 | 9.97 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 96.3 | 202.2 | 6.3 | 184.7 | 60.7 | 251.6 | 14.3 | 15.18 | 9000 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 54.7 | 114.9 | .9 | 20.5 | 34.5 | 56.0 | 4.7 | 5.75 | 3600 | 1800 | 127 | 150 | 4 |
| 962 | 7 | 7 | 104.0 | 218.4 | 10.1 | 269.0 | 65.5 | 344.6 | 6.2 | 16.61 | 10000 | 7780 | 52 | 100 | 4 |
| 962 | 8 | 7 | 219.5 | 461.0 | 25.8 | 674.3 | 138.3 | 838.4 | 11.5 | 41.54 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 38.6 | 81.0 | .4 | .3 | 24.3 | 25.0 | .3 | 2.38 | 1500 | 2040 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 42.4 | 89.0 | .6 | 5.9 | 26.7 | 33.3 | .6 | 3.17 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 46.3 | 97.1 | .9 | 1.2 | 29.1 | 31.2 | .3 | 3.83 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 46.3 | 97.1 | 1.7 | 7.0 | 29.1 | 37.8 | .2 | 3.85 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 77.1 | 161.8 | 5.2 | 43.3 | 48.5 | 97.0 | .3 | 9.55 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 67.8 | 142.4 | 6.4 | 37.0 | 42.7 | 86.2 | .2 | 7.96 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 76.3 | 160.2 | 8.9 | 70.1 | 48.1 | 127.1 | .3 | 9.20 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 427.4 | 897.5 | 73.4 | 818.3 | 269.3 | 1161.0 | .6 | 76.42 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 157.9 | 331.6 | 7.9 | 87.0 | 99.5 | 194.4 | 1.7 | 23.90 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 42.4 | 89.0 | .5 | 13.5 | 26.7 | 40.7 | 10.1 | 3.28 | 2600 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 48.6 | 102.1 | 2.2 | 54.4 | 30.6 | 87.2 | 2.4 | 4.61 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 69.4 | 145.6 | 4.4 | 111.1 | 43.7 | 159.2 | 4.4 | 9.03 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 81.7 | 171.5 | 5.7 | 141.2 | 51.5 | 198.4 | 3.1 | 11.66 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 50.8 | 106.6 | .7 | 18.3 | 32.0 | 51.0 | 1.8 | 5.16 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 94.1 | 197.5 | 6.6 | 116.4 | 59.3 | 182.3 | .3 | 14.53 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 205.3 | 431.2 | 28.8 | 345.8 | 129.4 | 504.0 | .7 | 34.04 | 23159 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 47.6 | 99.9 | .7 | 13.8 | 30.0 | 44.5 | 1.2 | 4.38 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 80.4 | 168.8 | 3.1 | 66.0 | 50.6 | 119.8 | 3.2 | 11.07 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 42.4 | 89.0 | 1.5 | 41.9 | 26.7 | 70.1 | 22.3 | 3.30 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 74.0 | 155.3 | 6.1 | 85.2 | 46.6 | 138.0 | .4 | 9.55 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 87.8 | 184.4 | 7.4 | 126.2 | 55.3 | 189.0 | .6 | 12.62 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 50.1 | 105.2 | 2.9 | 20.5 | 31.6 | 55.0 | .2 | 4.76 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 42.4 | 89.0 | 1.8 | .4 | 26.7 | 28.9 | .1 | 3.20 | 2000 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 111.7 | 234.6 | 11.1 | 149.7 | 70.4 | 231.2 | 1.3 | 16.17 | 11600 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 154.1 | 323.5 | 19.2 | 218.1 | 97.1 | 334.4 | 1.5 | 23.20 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 70.9 | 148.9 | 5.6 | 81.6 | 44.7 | 131.9 | 2.2 | 8.38 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | 4 | 1 | 87.8 | 184.4 | 8.9 | 107.6 | 53.3 | 171.9 | 2.1 | 11.11 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 101.7 | 213.5 | 11.1 | 134.7 | 64.1 | 209.8 | 2.5 | 13.64 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 95.5 | 200.6 | 10.1 | 121.1 | 60.2 | 191.5 | 2.0 | 12.51 | 8900 | 5000 | 162 | 300 | 1 |

# TABLE 59 (Continued)

## CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 909 | 1 | 1 | 54.6 | 114.7 | 2.0 | 40.6 | 34.4 | 77.0 | 1.2 | 5.77 | 3586 | 4000 | 461 | 140 | 4 |
| 909 | 2 | 1 | 55.9 | 117.4 | 2.1 | 50.4 | 35.2 | 87.7 | 8.6 | 6.05 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 3 | 1 | 55.9 | 117.4 | 2.1 | 50.4 | 35.2 | 87.7 | 8.6 | 6.05 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 44.1 | 92.6 | 1.2 | 29.3 | 27.8 | 58.3 | 5.7 | 3.58 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 44.1 | 92.6 | 1.2 | 29.3 | 27.8 | 58.3 | 5.7 | 3.58 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 87.1 | 182.8 | 3.4 | 67.1 | 54.9 | 145.4 | 4.4 | 12.86 | 7861 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 44.1 | 92.6 | 1.5 | 35.2 | 27.8 | 64.4 | 1.6 | 3.66 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 116.6 | 244.9 | 8.2 | 194.1 | 73.5 | 275.7 | 3.3 | 19.04 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 58.0 | 121.9 | 2.7 | 76.7 | 36.6 | 116.0 | 24.3 | 6.70 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 58.0 | 121.9 | 2.7 | 76.7 | 36.6 | 116.0 | 24.3 | 6.70 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 58.0 | 121.9 | 2.7 | 76.7 | 36.6 | 116.0 | 24.3 | 6.70 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 88.6 | 186.1 | 4.9 | 135.2 | 55.8 | 196.0 | 21.2 | 13.29 | 8000 | 4800 | 17 | 100 | 2 |
| 964 | 5 | 5 | 54.0 | 113.3 | 2.4 | 65.5 | 34.0 | 101.8 | 8.0 | 5.81 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 88.6 | 186.1 | .9 | 22.3 | 55.8 | 78.9 | 2.8 | 13.50 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 54.0 | 113.3 | .2 | 0.0 | 34.0 | 34.2 | .6 | 5.95 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 73.2 | 153.7 | .9 | 24.2 | 46.1 | 71.2 | 5.9 | 10.05 | 6000 | 1200 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 40.70 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 40.70 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 40.70 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 46.70 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 40.70 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 46.70 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 215.7 | 452.9 | 24.4 | 647.1 | 135.9 | 807.4 | 76.5 | 40.70 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 100.2 | 210.3 | 9.5 | 245.2 | 63.1 | 317.8 | 7.5 | 15.66 | 9500 | 7488 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 365.8 | 768.2 | 27.8 | 423.7 | 230.5 | 681.9 | .5 | 70.57 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | 3 | 365.8 | 768.2 | 27.8 | 423.7 | 230.5 | 681.9 | .5 | 70.57 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 104.0 | 218.4 | 10.0 | 156.1 | 65.5 | 231.6 | .7 | 15.59 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 373.5 | 784.4 | 46.0 | 897.2 | 235.3 | 1178.5 | 14.9 | 70.74 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 234.9 | 493.3 | 22.5 | 482.4 | 148.0 | 652.9 | 1.0 | 44.51 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 373.5 | 784.4 | 39.5 | 942.9 | 235.3 | 1217.6 | 87.5 | 73.61 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 65.5 | 137.6 | .6 | 15.5 | 41.3 | 57.4 | 16.3 | 8.31 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 43.2 | 90.7 | 1.2 | 17.9 | 27.2 | 46.3 | .6 | 3.35 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 84.8 | 178.0 | 2.3 | 47.8 | 53.4 | 103.6 | 2.5 | 11.98 | 7300 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 74.6 | 156.7 | 5.5 | 111.4 | 47.0 | 164.0 | 1.4 | 9.68 | 6182 | 6000 | 226 | 150 | 2 |
| 45 | 2 | 5 | 173.3 | 363.9 | 22.0 | 417.5 | 109.2 | 548.7 | 1.5 | 30.11 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 77.1 | 161.8 | 5.1 | 104.4 | 46.5 | 156.1 | 1.6 | 10.38 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 104.0 | 218.4 | .3 | 6.3 | 65.5 | 72.1 | 35.1 | 16.29 | 10000 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 50.1 | 105.2 | .5 | 10.7 | 31.6 | 42.6 | 3.2 | 4.89 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 50.1 | 105.2 | .6 | 13.5 | 31.6 | 45.7 | 2.8 | 4.87 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 73.2 | 153.7 | 1.9 | 40.7 | 46.1 | 88.7 | 1.6 | 9.74 | 6000 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 104.5 | 219.4 | 3.4 | 49.1 | 65.8 | 118.3 | .5 | 16.20 | 10060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 98.3 | 206.5 | 5.0 | 108.9 | 61.9 | 175.8 | 1.5 | 15.09 | 9263 | 3650 | 233 | 125 | 3 |
| 249 | 7 | 4 | 83.2 | 174.7 | 2.1 | 46.9 | 52.4 | 101.5 | 2.0 | 11.94 | 7300 | 2100 | 246 | 120 | 4 |

## TABLE 59 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

(WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST + | FUEL COST + | OTHER COSTS - | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 628 | 1 | 1 | 65.5 | 137.6 | 1.6 | 44.5 | 41.3 | 87.4 | 7.0 | 8.31 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 57.8 | 121.4 | 2.4 | 65.8 | 36.4 | 104.6 | 5.7 | 6.65 | 4660 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 38.6 | 81.0 | .9 | 24.4 | 24.3 | 49.5 | 6.5 | 2.47 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 157.9 | 331.6 | 12.2 | 231.4 | 99.5 | 343.1 | 2.4 | 26.72 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 157.9 | 331.6 | 12.2 | 236.5 | 99.3 | 348.3 | 3.4 | 26.72 | 17000 | 4380 | 123 | 170 | 2 |
| 799 | 4 | 2 | 80.9 | 169.9 | 1.6 | 31.4 | 51.0 | 84.0 | 2.7 | 11.09 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 40.6 | 85.3 | .2 | 2.5 | 25.6 | 28.3 | 1.4 | 2.80 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 165.3 | 347.1 | 10.9 | 219.5 | 104.1 | 334.5 | 3.8 | 28.46 | 17960 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 63.0 | 132.2 | 1.0 | 21.0 | 39.7 | 61.7 | 2.8 | 7.46 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 36.2 | 76.1 | .4 | 10.3 | 22.8 | 33.6 | 7.6 | 1.96 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 48.6 | 102.0 | 2.0 | 42.8 | 30.6 | 75.4 | .6 | 4.71 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 85.5 | 179.6 | 5.6 | 136.1 | 53.9 | 195.6 | .9 | 12.77 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 43.9 | 92.3 | 1.6 | 35.6 | 27.7 | 64.9 | .8 | 3.68 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 53.2 | 111.7 | 2.5 | 53.7 | 33.5 | 69.7 | .6 | 5.69 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 74.0 | 155.3 | 4.5 | 110.1 | 46.6 | 161.2 | 1.0 | 10.22 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 70.1 | 147.3 | 4.1 | 106.0 | 44.2 | 154.3 | 1.5 | 9.37 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 72.4 | 152.1 | 4.5 | 111.1 | 45.6 | 161.3 | 1.5 | 9.78 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 62.4 | 131.1 | 3.4 | 78.4 | 39.3 | 121.1 | .8 | 7.70 | 4600 | 6000 | 492 | 98 | 3 |
| 953 | 9 | 1 | 58.6 | 123.0 | 3.1 | 66.8 | 36.9 | 106.8 | .7 | 6.82 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 59.3 | 124.6 | 3.1 | 70.1 | 37.4 | 110.6 | .7 | 7.02 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 72.4 | 152.1 | 4.4 | 106.0 | 45.6 | 156.1 | 1.0 | 9.85 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 199.5 | 418.9 | 17.8 | 449.7 | 125.7 | 593.1 | 2.7 | 37.30 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 191.0 | 401.1 | 16.9 | 426.2 | 120.3 | 563.4 | 2.6 | 35.47 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 96.3 | 202.2 | 6.5 | 193.9 | 60.7 | 261.1 | 36.3 | 15.18 | 9000 | 6000 | 12 | 88 | 1 |
| 953 | 15 | 1 | 96.3 | 202.2 | 6.5 | 193.9 | 60.7 | 261.1 | 36.3 | 15.18 | 9000 | 6000 | 12 | 88 | 1 |
| 953 | 16 | 1 | 61.7 | 129.5 | 3.2 | 96.7 | 38.8 | 138.7 | 25.7 | 7.59 | 4500 | 6000 | 17 | 88 | 1 |
| 953 | 17 | 1 | 61.7 | 129.5 | 3.2 | 96.7 | 38.8 | 138.7 | 25.7 | 7.59 | 4500 | 6000 | 17 | 88 | 1 |
| 13 | 1 | 1 | 73.2 | 153.7 | 4.9 | 123.1 | 46.1 | 174.1 | 8.2 | 9.82 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 50.1 | 105.2 | 2.4 | 58.5 | 31.6 | 92.4 | 2.8 | 4.91 | 3000 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 65.5 | 137.6 | 3.9 | 103.4 | 41.3 | 148.6 | 8.4 | 8.24 | 5000 | 6000 | 59 | 110 | 2 |
| 13 | 4 | 1 | 50.1 | 105.2 | 2.2 | 60.3 | 31.6 | 94.1 | 3.5 | 4.98 | 3000 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 96.3 | 202.2 | 7.7 | 178.9 | 60.7 | 247.2 | 3.9 | 14.61 | 9000 | 6000 | 119 | 130 | 1 |
| 13 | 6 | 2 | 111.7 | 234.6 | 9.2 | 227.6 | 70.4 | 307.1 | 12.2 | 17.99 | 11000 | 6000 | 38 | 120 | 2 |
| 104 | 1 | 1 | 61.4 | 129.0 | 2.4 | 55.0 | 38.7 | 96.2 | 1.8 | 7.28 | 4470 | 4000 | 233 | 125 | 4 |
| 104 | 2 | 1 | 44.8 | 94.1 | 1.2 | 6.7 | 28.2 | 36.1 | .2 | 3.77 | 2312 | 4000 | 1577 | 125 | 4 |
| 104 | 3 | 1 | 44.8 | 94.1 | 1.2 | 6.7 | 26.2 | 36.1 | .2 | 3.77 | 2312 | 4000 | 1577 | 125 | 4 |
| 104 | 4 | 1 | 54.7 | 114.9 | 2.1 | 23.6 | 34.5 | 60.2 | .3 | 5.75 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 88.6 | 106.1 | 3.3 | 70.9 | 55.0 | 136.0 | 1.3 | 13.05 | 8066 | 3000 | 487 | 120 | 3 |

## TABLE 59 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS), ANNUAL COST PER POUND OF VOC, AND SIZE OF INCINERATOR SYSTEMS

### (WITH 70% HEAT RECOVERY)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTALLED COST | ELEC COST | + | FUEL COST | + | OTHER COSTS | = | ANNUAL COST | ANNUAL $/ LB VOC | SIZE MM BTU | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 431 | 1 | 7 | 61.7 | 129.5 | .9 | | 18.0 | | 38.9 | | 57.9 | 20.2 | 6.94 | 4505 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 61.7 | 129.5 | .9 | | 17.3 | | 38.9 | | 57.1 | 13.5 | 6.97 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 88.6 | 186.1 | 3.3 | | 62.1 | | 55.8 | | 121.2 | 5.8 | 12.42 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 104.5 | 219.5 | 1.2 | | 25.6 | | 65.9 | | 92.7 | 10.9 | 15.98 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 119.4 | 250.7 | 3.9 | | 94.2 | | 75.2 | | 173.4 | 5.3 | 19.63 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 44.3 | 93.1 | .3 | | 5.2 | | 27.9 | | 33.4 | 8.2 | 3.45 | 2250 | 772 | 180 | 200 | 3 |
| 431 | 7 | 5 | 39.3 | 82.5 | .9 | | 21.0 | | 24.7 | | 46.7 | 1.2 | 2.63 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 61.1 | 128.3 | 4.8 | | 105.2 | | 38.5 | | 146.5 | 1.1 | 7.25 | 4430 | 6000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 61.1 | 128.3 | 4.8 | | 105.2 | | 38.5 | | 148.5 | 1.1 | 7.25 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 460.5 | 967.1 | 30.7 | | 693.0 | | 290.1 | | 1013.8 | 2.1 | 92.82 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 460.5 | 967.1 | 30.7 | | 693.0 | | 290.1 | | 1013.8 | 2.1 | 92.82 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 460.5 | 967.1 | 15.4 | | 364.2 | | 290.1 | | 669.7 | 5.3 | 92.82 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 460.5 | 967.1 | 15.4 | | 364.2 | | 290.1 | | 669.7 | 5.3 | 92.82 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 127.1 | 266.9 | 13.1 | | 263.3 | | 80.1 | | 356.5 | .9 | 21.10 | 13000 | 7000 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 175.6 | 368.8 | 19.8 | | 393.9 | | 110.6 | | 524.3 | .9 | 31.33 | 19300 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 80.9 | 169.9 | 6.9 | | 140.0 | | 51.0 | | 197.9 | .9 | 11.36 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 304.2 | 638.8 | 37.7 | | 848.6 | | 191.6 | | 1077.9 | 5.5 | 58.43 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 358.1 | 752.0 | 45.3 | | 1014.9 | | 225.6 | | 1285.9 | 5.7 | 69.79 | 43000 | 7000 | 61 | 130 | 3 |

## TABLE 60

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1042 | 1 7 | 65.7 | 177.4 | 8.8 | 3.9 | 7.1 | .6 | 53.2 | 73.56 | .26 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 7 | 199.8 | 539.5 | 75.4 | 15.8 | 28.8 | 1.5 | 161.8 | 283.36 | .12 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 3 | 64.4 | 173.9 | 12.0 | 3.6 | 6.6 | .4 | 52.2 | 74.69 | .20 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 25.1 | 29.17 | 2.00 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 1 | 28.1 | 75.9 | .0 | 1.0 | 1.9 | .2 | 22.8 | 25.88 | 18.54 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 25.1 | 29.17 | 2.00 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 25.1 | 29.17 | 2.00 | 1100 | 6760 | 556 | 72 | 4 |
| 904 | 5 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 25.1 | 29.15 | 2.01 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 7 | 23.0 | 62.1 | .1 | .3 | .6 | .1 | 18.6 | 19.76 | 7.00 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 3 | 35.4 | 95.6 | .2 | 1.2 | 2.2 | .3 | 28.7 | 32.52 | 4.98 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 7 | 42.3 | 114.3 | 1.1 | .4 | .7 | .1 | 34.3 | 36.68 | 1.03 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 7 | 47.8 | 129.0 | 5.0 | 1.3 | 2.4 | .2 | 38.7 | 47.72 | .30 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 7 | 38.9 | 104.9 | .4 | 2.5 | 4.5 | .4 | 31.5 | 39.14 | 3.43 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 7 | 39.4 | 106.4 | .2 | 1.5 | 2.7 | .4 | 31.9 | 36.68 | 5.18 | 2500 | 3600 | 125 | 200 | 2 |
| 1101 | 9 7 | 70.5 | 190.2 | 2.2 | .2 | .3 | .0 | 57.1 | 59.75 | .87 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 3 | 184.1 | 497.0 | 23.1 | 21.3 | 38.9 | 2.5 | 149.1 | 234.91 | .32 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 3 | 102.1 | 275.5 | 11.6 | 10.6 | 19.4 | 1.3 | 82.7 | 125.57 | .34 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 3 | 85.1 | 229.8 | 10.2 | 8.3 | 15.1 | 1.0 | 68.9 | 103.51 | .32 | 7000 | 7200 | 493 | 250 | 2 |
| 581 | 1 1 | 52.8 | 142.5 | 4.8 | 2.7 | 5.0 | .4 | 42.8 | 55.67 | .37 | 2800 | 5960 | 1053 | 200 | 3 |
| 581 | 2 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 3 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 4 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 3 |
| 581 | 5 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 6 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 7 8 | 147.2 | 397.3 | 19.5 | 12.3 | 22.5 | 1.8 | 119.2 | 175.21 | .28 | 12560 | 5960 | 801 | 200 | 2 |
| 581 | 8 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 9 1 | 146.5 | 395.7 | 19.5 | 12.2 | 22.3 | 1.7 | 118.7 | 174.47 | .28 | 12480 | 5960 | 806 | 200 | 2 |
| 581 | 10 2 | 211.4 | 570.8 | 10.4 | 20.3 | 37.0 | 2.9 | 171.3 | 241.86 | .73 | 21000 | 5880 | 434 | 200 | 1 |
| 581 | 11 4 | 56.3 | 152.1 | 6.2 | 2.3 | 4.3 | .3 | 45.6 | 58.78 | .30 | 2400 | 5960 | 1777 | 200 | 2 |
| 581 | 12 4 | 56.3 | 152.1 | 6.2 | 2.3 | 4.3 | .3 | 45.6 | 58.78 | .30 | 2400 | 5960 | 1777 | 200 | 3 |
| 581 | 13 4 | 120.2 | 324.4 | 11.0 | 10.1 | 18.5 | 1.5 | 97.3 | 138.44 | .40 | 10370 | 5960 | 625 | 200 | 2 |
| 581 | 14 4 | 78.0 | 210.7 | 8.6 | 5.6 | 10.3 | .8 | 63.2 | 88.59 | .32 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 75.7 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 4 | 52.8 | 142.5 | 4.8 | 2.7 | 5.0 | .4 | 42.8 | 55.67 | .37 | 2800 | 5960 | 1053 | 200 | 3 |
| 702 | 4 8 | 147.2 | 397.3 | 19.5 | 12.3 | 22.5 | 1.8 | 119.2 | 175.21 | .28 | 12560 | 5960 | 801 | 200 | 2 |
| 702 | 5 4 | 120.2 | 324.4 | 11.0 | 10.1 | 18.5 | 1.5 | 97.3 | 130.44 | .40 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 5 | 78.0 | 210.7 | 8.6 | 5.6 | 10.3 | .8 | 63.2 | 86.59 | .32 | 5760 | 5960 | 730 | 200 | 2 |

## TABLE 60 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 589 | 1 | 7 | 42.6 | 115.1 | 1.5 | 1.8 | 3.3 | .4 | 34.5 | 41.48 | .88 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 | 7 | 48.8 | 131.9 | 1.3 | 2.5 | 4.5 | .5 | 39.6 | 48.29 | 1.18 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 | 7 | 54.7 | 147.7 | 3.3 | 2.5 | 4.6 | .5 | 44.3 | 55.20 | .53 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 | 7 | 45.1 | 121.9 | .7 | 2.3 | 4.1 | .4 | 36.6 | 44.14 | 1.87 | 3120 | 4410 | 167 | 220 | 1 |
| 589 | 5 | 7 | 47.7 | 128.8 | 4.7 | 1.3 | 2.4 | .3 | 38.6 | 47.34 | .32 | 1828 | 4410 | 1606 | 210 | 1 |
| 589 | 6 | 7 | 45.0 | 121.5 | .4 | .3 | .5 | .3 | 36.5 | 37.91 | 2.89 | 2292 | 675 | 824 | 160 | 1 |
| 1126 | 1 | 1 | 44.5 | 120.1 | .4 | .4 | .8 | .4 | 36.0 | 37.97 | 2.81 | 2500 | 1000 | 586 | 110 | 4 |
| 1126 | 2 | 1 | 50.2 | 135.6 | 3.4 | 2.5 | 4.5 | .4 | 40.7 | 51.47 | .48 | 3000 | 5000 | 670 | 120 | 4 |
| 1126 | 3 | 1 | 48.1 | 129.7 | 1.0 | .6 | 1.1 | .4 | 38.9 | 42.01 | 1.33 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 | 1 | 105.7 | 285.4 | 4.4 | 8.2 | 15.0 | 1.4 | 85.6 | 114.62 | .62 | 10000 | 5000 | 242 | 110 | 4 |
| 1126 | 5 | 1 | 68.6 | 185.1 | 5.0 | 3.9 | 7.2 | .7 | 55.5 | 72.34 | .46 | 5000 | 4800 | 610 | 110 | 2 |
| 103 | 1 | 1 | 40.4 | 109.2 | .3 | 1.1 | 2.1 | .4 | 32.7 | 36.68 | 3.43 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 | 1 | 63.7 | 172.0 | 1.9 | 4.5 | 8.3 | .7 | 51.6 | 67.07 | 1.09 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 | 1 | 56.3 | 152.0 | 5.2 | 3.3 | 6.1 | .5 | 45.6 | 60.71 | .37 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 | 1 | 64.7 | 174.6 | 2.4 | 5.0 | 9.1 | .7 | 52.4 | 69.53 | .90 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 | 1 | 80.6 | 217.6 | 3.6 | 6.8 | 12.5 | .9 | 65.3 | 89.12 | .79 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 | 3 | 102.7 | 277.3 | 1.1 | 4.9 | 9.0 | 1.4 | 83.2 | 99.57 | 2.97 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 | 4 | 41.8 | 112.9 | .9 | 1.4 | 2.6 | .4 | 33.9 | 39.10 | 1.41 | 2500 | 3450 | 344 | 150 | 2 |
| 865 | 1 | 1 | 36.5 | 98.4 | .5 | .7 | 1.2 | .3 | 29.5 | 32.19 | 2.05 | 2000 | 2036 | 251 | 140 | 4 |
| 865 | 2 | 1 | 69.5 | 187.7 | 2.0 | 1.9 | 3.5 | .8 | 56.3 | 64.53 | 1.03 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 | 1 | 41.0 | 110.8 | 1.0 | .5 | .9 | .3 | 33.2 | 35.97 | 1.14 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 | 1 | 59.9 | 161.8 | 1.5 | 1.6 | 3.0 | .6 | 48.5 | 55.32 | 1.17 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 | 2 | 223.4 | 603.1 | 7.4 | 4.7 | 8.6 | 3.0 | 180.9 | 204.69 | .87 | 21700 | 1321 | 534 | 80 | 4 |
| 715 | 1 | 2 | 142.5 | 384.7 | 3.0 | 16.6 | 30.3 | 2.1 | 115.4 | 167.44 | 1.73 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 | 1 | 60.2 | 162.6 | 4.2 | 3.7 | 6.7 | .6 | 48.8 | 63.89 | .48 | 4083 | 5481 | 636 | 115 | 2 |
| 715 | 3 | 1 | 64.1 | 173.1 | 2.1 | 2.3 | 4.3 | .6 | 51.9 | 61.28 | .92 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 | 1 | 58.6 | 158.1 | .1 | .0 | .1 | .5 | 47.4 | 48.12 | 22.49 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 | 1 | 70.2 | 189.4 | 4.2 | 5.5 | 10.1 | .8 | 56.8 | 77.51 | .57 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 | 1 | 95.5 | 257.8 | 4.4 | 8.8 | 16.0 | 1.2 | 77.3 | 107.76 | .77 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 | 3 | 210.6 | 568.6 | 16.9 | 16.5 | 30.2 | 2.9 | 170.6 | 237.12 | .44 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 | 3 | 174.7 | 471.6 | 19.1 | 16.2 | 29.6 | 2.3 | 141.5 | 208.66 | .34 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 | 7 | 94.8 | 256.0 | 5.4 | 6.1 | 11.1 | 1.2 | 76.8 | 100.58 | .59 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 | 5 | 94.1 | 254.1 | .8 | 8.4 | 15.3 | 1.3 | 76.2 | 102.02 | 3.83 | 9276 | 5491 | 44 | 150 | 2 |
| 425 | 1 | 1 | 76.6 | 206.9 | 3.5 | 3.8 | 7.0 | .9 | 62.1 | 77.31 | .69 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 | 1 | 72.8 | 196.4 | 5.7 | 5.7 | 10.4 | .8 | 58.9 | 81.64 | .45 | 5800 | 6000 | 427 | 140 | 3 |
| 425 | 3 | 1 | 75.8 | 204.8 | 2.5 | 2.6 | 4.8 | .9 | 61.4 | 72.28 | .91 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 | 1 | 75.8 | 204.8 | 4.2 | 4.5 | 8.2 | .9 | 61.4 | 79.18 | .59 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 | 1 | 68.9 | 186.0 | 4.4 | 4.0 | 7.3 | .7 | 55.8 | 72.28 | .52 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 | 1 | 107.4 | 290.1 | 4.3 | 7.5 | 13.8 | 1.4 | 87.0 | 114.07 | .83 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 | 2 | 105.6 | 285.1 | 5.5 | 2.9 | 5.3 | 1.2 | 65.5 | 100.35 | .56 | 8400 | 2100 | 798 | 225 | 3 |

## TABLE 60 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 425 | 8 | 2 | 99.6 | 268.8 | 12.7 | 7.0 | 12.8 | 1.1 | 80.6 | 114.10 | .28 | 7600 | 5600 | 802 | 225 | 4 |
| 425 | 9 | 2 | 102.6 | 276.9 | 16.8 | 9.7 | 17.8 | 1.1 | 83.1 | 128.48 | .24 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 | 2 | 106.4 | 287.2 | 12.7 | 9.1 | 16.6 | 1.2 | 86.2 | 125.64 | .31 | 8500 | 6500 | 789 | 225 | 4 |
| 425 | 11 | 2 | 108.1 | 291.8 | 3.1 | 1.7 | 3.1 | 1.2 | 87.5 | 96.76 | .97 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 | 5 | 89.2 | 240.8 | 6.7 | 10.2 | 18.7 | 1.1 | 72.2 | 109.01 | .51 | 8000 | 7800 | 277 | 250 | 4 |
| 425 | 13 | 5 | 89.2 | 240.8 | 6.7 | 10.2 | 18.7 | 1.1 | 72.2 | 109.01 | .51 | 8000 | 7800 | 277 | 250 | 2 |
| 425 | 14 | 3 | 62.4 | 168.5 | 5.3 | 4.3 | 7.8 | .6 | 50.5 | 68.55 | .41 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 | 1 | 145.6 | 393.1 | 3.3 | 9.8 | 18.0 | 2.1 | 117.9 | 151.13 | 1.46 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 | 1 | 73.9 | 199.5 | 2.9 | 3.5 | 6.5 | .8 | 59.8 | 73.65 | .79 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 | 1 | 97.7 | 263.8 | 3.0 | 5.3 | 9.7 | 1.3 | 79.1 | 96.46 | 1.03 | 9060 | 3600 | 268 | 140 | 4 |
| 984 | 4 | 1 | 62.6 | 169.1 | 2.5 | 2.2 | 4.1 | .6 | 50.7 | 60.14 | .75 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 | 1 | 73.9 | 199.5 | 2.5 | 3.1 | 5.6 | .8 | 59.8 | 71.85 | .89 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 | 2 | 222.8 | 601.5 | 10.1 | 17.4 | 31.7 | 3.2 | 180.4 | 242.82 | .76 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 | 2 | 121.8 | 328.9 | 9.4 | 6.4 | 11.7 | 1.4 | 98.7 | 127.61 | .43 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 | 2 | 150.9 | 407.5 | 6.8 | 7.1 | 13.0 | 2.0 | 122.2 | 151.12 | .70 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 | 2 | 96.9 | 261.6 | 5.9 | 3.1 | 5.7 | 1.0 | 78.5 | 94.13 | .50 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 | 2 | 150.9 | 407.5 | 7.0 | 7.4 | 13.4 | 2.0 | 122.2 | 151.99 | .68 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 | 2 | 221.2 | 597.1 | 7.9 | 13.5 | 24.6 | 3.2 | 179.1 | 228.30 | .91 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 | 2 | 53.5 | 144.4 | .6 | 1.4 | 2.6 | .6 | 43.3 | 48.58 | 2.54 | 4000 | 2200 | 228 | 225 | 4 |
| 984 | 13 | 4 | 72.9 | 196.8 | 6.8 | 4.1 | 7.5 | .7 | 59.1 | 78.17 | .36 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 | 3 | 136.9 | 369.5 | 12.4 | 6.5 | 11.9 | 1.6 | 110.9 | 143.22 | .36 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 | 3 | 88.4 | 238.7 | 19.7 | 5.6 | 10.3 | .8 | 71.6 | 108.02 | .17 | 5700 | 6000 | 1325 | 155 | 4 |
| 984 | 16 | 5 | 88.9 | 240.1 | 2.3 | 7.7 | 14.1 | 1.2 | 72.0 | 97.28 | 1.36 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 | 5 | 113.5 | 306.4 | 2.2 | 11.9 | 21.7 | 1.6 | 91.9 | 129.38 | 1.83 | 11500 | 6300 | 79 | 245 | 3 |
| 984 | 18 | 5 | 128.3 | 346.3 | 5.5 | 12.0 | 21.9 | 1.8 | 103.9 | 145.00 | .84 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 | 2 | 222.4 | 600.6 | 8.3 | 11.3 | 20.7 | 3.2 | 180.2 | 223.73 | .85 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 | 2 | 103.2 | 278.6 | 8.3 | 3.9 | 7.1 | 1.1 | 83.6 | 103.99 | .39 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 | 2 | 302.9 | 818.0 | 6.9 | 13.5 | 24.8 | 4.6 | 245.4 | 295.23 | 1.34 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 | 5 | 58.8 | 158.7 | 2.6 | 2.8 | 5.0 | .6 | 47.6 | 58.64 | .70 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 | 5 | 101.2 | 273.2 | 3.2 | 7.6 | 13.8 | 1.3 | 81.9 | 107.85 | 1.07 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 | 5 | 58.8 | 158.7 | 1.7 | 1.7 | 3.2 | .6 | 47.6 | 54.72 | 1.04 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 | 5 | 58.8 | 158.7 | 1.7 | 1.7 | 3.2 | .6 | 47.6 | 54.72 | 1.04 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 | 5 | 434.2 | 1172.4 | 9.5 | 49.2 | 90.0 | 7.0 | 351.7 | 507.49 | 1.68 | 30000 | 6000 | 94 | 100 | 2 |
| 671 | 9 | 4 | 120.6 | 325.6 | 9.9 | 4.5 | 8.3 | 1.3 | 97.7 | 121.70 | .39 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 | 4 | 142.0 | 383.4 | 13.2 | 7.9 | 14.4 | 1.7 | 115.0 | 152.20 | .36 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 | 4 | 121.3 | 327.6 | 13.2 | 6.1 | 11.2 | 1.3 | 98.3 | 130.08 | .31 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 | 4 | 164.3 | 443.5 | 14.2 | 10.5 | 19.2 | 2.1 | 133.1 | 179.00 | .40 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 | 4 | 205.1 | 553.8 | 11.6 | 11.5 | 21.6 | 2.8 | 166.1 | 213.61 | .58 | 20000 | 3500 | 488 | 180 | 3 |
| 671 | 14 | 4 | 333.6 | 900.7 | 16.5 | 29.5 | 54.0 | 5.0 | 270.2 | 375.34 | .71 | 36000 | 5000 | 271 | 180 | 2 |
| 302 | 1 | 1 | 44.1 | 119.1 | .7 | 3.5 | 6.4 | .4 | 35.7 | 46.74 | 1.97 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 | 1 | 44.1 | 119.1 | .1 | 3.5 | 6.4 | .4 | 35.7 | 46.07 | 10.17 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 | 1 | 62.9 | 170.0 | 1.9 | 6.6 | 12.0 | .7 | 51.0 | 72.16 | 1.21 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 | 1 | 48.9 | 131.9 | 2.2 | 4.4 | 8.1 | .4 | 39.6 | 54.73 | .79 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 | 1 | 41.8 | 112.9 | 2.3 | 3.0 | 5.5 | .3 | 33.9 | 44.98 | .63 | 2160 | 8544 | 639 | 160 | 2 |

# TABLE 60 (Continued)

## CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 233 | 1 | 1 | 42.8 | 115.7 | 1.9 | 3.0 | 5.5 | .4 | 34.7 | 45.49 | .77 | 2735 | 6738 | 250 | 90 | 4 |
| 233 | 2 | 1 | 56.1 | 151.5 | 3.1 | 4.8 | 8.8 | .6 | 45.5 | 62.68 | .64 | 4200 | 6952 | 288 | 100 | 4 |
| 233 | 3 | 1 | 40.1 | 108.3 | .5 | .7 | 1.3 | .3 | 32.5 | 35.26 | 2.21 | 2300 | 1826 | 350 | 125 | 3 |
| 233 | 4 | 1 | 110.4 | 298.0 | 4.3 | 9.8 | 17.8 | 1.5 | 89.4 | 122.94 | .67 | 10600 | 5608 | 225 | 118 | 2 |
| 233 | 5 | 3 | 377.5 | 1019.2 | 74.3 | 20.8 | 38.0 | 4.3 | 305.8 | 443.19 | .19 | 31000 | 4082 | 1400 | 140 | 3 |
| 233 | 6 | 3 | 746.8 | 2016.5 | 27.9 | 19.8 | 36.1 | 10.6 | 604.9 | 699.37 | .79 | 76000 | 1584 | 621 | 93 | 2 |
| 449 | 1 | 3 | 55.8 | 150.7 | 4.3 | .6 | 1.1 | .2 | 45.2 | 51.41 | .38 | 1700 | 2163 | 2661 | 190 | 4 |
| 449 | 2 | 1 | 58.8 | 158.8 | 6.6 | 2.8 | 5.1 | .5 | 47.6 | 62.65 | .30 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 | 1 | 58.8 | 158.8 | 6.4 | 2.6 | 4.8 | .5 | 47.6 | 61.91 | .31 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 | 1 | 58.8 | 158.8 | 5.5 | 2.4 | 4.3 | .5 | 47.6 | 60.29 | .35 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 | 1 | 65.3 | 176.4 | 7.3 | 2.4 | 4.3 | .5 | 52.9 | 67.45 | .29 | 3850 | 3757 | 1157 | 225 | 1 |
| 449 | 6 | 1 | 39.7 | 107.2 | .3 | .1 | .1 | .2 | 32.2 | 32.78 | 3.92 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 | 1 | 58.8 | 158.8 | 5.6 | 2.3 | 4.3 | .5 | 47.6 | 60.34 | .34 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 | 1 | 58.8 | 158.8 | 5.4 | 2.3 | 4.1 | .5 | 47.6 | 59.92 | .35 | 3600 | 3811 | 875 | 120 | 4 |
| 449 | 9 | 1 | 58.8 | 158.8 | 6.9 | 2.8 | 5.2 | .5 | 47.6 | 63.05 | .29 | 3600 | 4778 | 875 | 220 | 4 |
| 285 | 1 | 2 | 208.2 | 562.0 | 11.4 | 9.8 | 18.0 | 2.8 | 168.6 | 210.69 | .58 | 20000 | 3000 | 547 | 200 | 3 |
| 285 | 2 | 2 | 202.1 | 545.6 | 9.1 | 11.8 | 21.6 | 2.8 | 163.7 | 209.04 | .72 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 | 2 | 57.1 | 154.0 | 4.1 | 1.8 | 3.4 | .4 | 46.2 | 55.93 | .43 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 | 2 | 68.6 | 185.3 | 6.0 | 1.2 | 2.1 | .4 | 55.6 | 65.25 | .34 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 | 2 | 63.1 | 170.4 | 8.4 | 2.8 | 5.1 | .4 | 51.1 | 67.68 | .26 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 | 3 | 141.8 | 382.7 | 18.0 | 14.3 | 26.1 | 1.8 | 114.8 | 175.06 | .31 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 | 3 | 140.7 | 379.9 | 18.5 | 14.1 | 25.7 | 1.8 | 114.0 | 174.14 | .30 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 | 3 | 144.5 | 390.0 | 22.5 | 14.1 | 25.7 | 1.8 | 117.0 | 181.13 | .25 | 13000 | 6600 | 602 | 120 | 4 |
| 891 | 8 | 3 | 170.4 | 460.2 | 24.9 | 17.3 | 31.7 | 2.2 | 138.1 | 214.23 | .27 | 16060 | 6600 | 542 | 120 | 1 |
| 676 | 1 | 1 | 69.8 | 188.5 | 1.1 | 4.5 | 8.3 | .9 | 56.5 | 71.31 | 2.13 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 | 1 | 105.2 | 284.1 | 1.1 | 7.8 | 14.2 | 1.5 | 85.2 | 109.79 | 3.28 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 | 1 | 57.8 | 156.1 | 1.1 | 3.4 | 6.3 | .7 | 46.8 | 58.22 | 1.74 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 | 1 | 57.8 | 156.1 | 1.1 | 3.4 | 6.3 | .7 | 46.8 | 58.22 | 1.74 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 | 4 | 110.3 | 297.7 | 1.3 | 5.4 | 9.9 | 1.5 | 89.3 | 107.46 | 2.60 | 11000 | 3000 | 109 | 150 | 2 |
| 333 | 1 | 3 | 99.8 | 269.6 | .2 | 3.1 | 5.7 | 1.4 | 80.9 | 91.33 | 13.11 | 10000 | 1905 | 37 | 120 | 4 |
| 786 | 1 | 1 | 79.2 | 214.0 | 2.7 | 7.4 | 13.5 | 1.0 | 64.2 | 88.74 | 1.04 | 7200 | 6240 | 142 | 220 | 3 |
| 786 | 2 | 1 | 79.2 | 214.0 | 2.3 | 7.4 | 13.5 | 1.0 | 64.2 | 88.37 | 1.20 | 7200 | 6240 | 142 | 220 | 4 |
| 786 | 3 | 1 | 61.3 | 165.5 | 1.2 | 4.3 | 7.8 | .7 | 49.7 | 63.67 | 1.64 | 5100 | 5100 | 129 | 220 | 4 |
| 786 | 4 | 4 | 102.3 | 276.2 | 1.6 | 5.1 | 9.4 | 1.4 | 82.9 | 100.33 | 2.00 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 | 3 | 133.2 | 359.6 | 9.2 | 11.5 | 20.9 | 1.8 | 107.9 | 151.27 | .52 | 12926 | 5400 | 302 | 220 | 2 |
| 645 | 4 | 3 | 104.0 | 280.7 | 4.7 | 8.8 | 16.1 | 1.4 | 84.2 | 115.23 | .76 | 9927 | 5400 | 203 | 236 | 4 |
| 645 | 5 | 7 | 111.4 | 300.9 | 4.0 | 9.7 | 17.7 | 1.5 | 90.3 | 123.23 | .96 | 10928 | 5400 | 167 | 230 | 4 |

## TABLE 60 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645 | 6 7 | 112.8 | 304.6 | 3.1 | 10.0 | 18.3 | 1.6 | 91.4 | 124.32 | 1.26 | 11275 | 5400 | 117 | 188 | 4 |
| 645 | 7 7 | 149.4 | 403.4 | 9.1 | 13.1 | 24.0 | 2.1 | 121.0 | 169.27 | .59 | 14609 | 5400 | 293 | 931 | 2 |
| 645 | 8 7 | 149.6 | 403.8 | 9.2 | 13.3 | 24.3 | 2.1 | 121.2 | 169.97 | .58 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 7 | 84.6 | 228.4 | 6.7 | 6.3 | 11.5 | 1.0 | 68.5 | 94.04 | .44 | 7097 | 5400 | 428 | 132 | 4 |
| 645 | 10 7 | 83.2 | 224.6 | 6.7 | 6.1 | 11.2 | 1.0 | 67.4 | 92.45 | .43 | 6919 | 5400 | 439 | 180 | 4 |
| 645 | 11 7 | 127.4 | 344.0 | 4.0 | 11.4 | 20.9 | 1.8 | 103.2 | 141.41 | 1.10 | 12915 | 5400 | 141 | 109 | 4 |
| 246 | 1 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 78.5 | 103.92 | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 78.5 | 103.92 | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 1 | 96.9 | 261.8 | 3.1 | 6.2 | 11.3 | 1.3 | 78.5 | 100.47 | 1.01 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 78.5 | 103.92 | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 1 | 96.9 | 261.8 | 3.4 | 6.8 | 12.4 | 1.3 | 78.5 | 102.44 | .94 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 1 | 96.9 | 261.8 | 4.2 | 8.3 | 15.1 | 1.3 | 78.5 | 107.37 | .81 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 4 | 131.3 | 354.5 | 11.9 | 11.2 | 20.5 | 1.7 | 106.4 | 151.64 | .40 | 12400 | 5500 | 383 | 150 | 3 |
| 508 | 1 5 | 74.8 | 201.9 | 7.2 | 5.6 | 10.2 | .8 | 60.6 | 84.30 | .37 | 5500 | 6166 | 691 | 160 | 3 |
| 508 | 2 5 | 140.7 | 379.9 | 11.1 | 11.5 | 21.1 | 1.8 | 114.0 | 159.51 | .45 | 13000 | 5403 | 496 | 140 | 3 |
| 508 | 3 2 | 64.7 | 174.6 | 5.6 | 2.8 | 5.0 | .6 | 52.4 | 66.32 | .37 | 4000 | 4191 | 1000 | 225 | 4 |
| 508 | 4 6 | 145.3 | 392.2 | 2.1 | 2.1 | 3.8 | 1.8 | 117.7 | 127.51 | 1.96 | 13200 | 971 | 571 | 140 | 4 |
| 508 | 5 2 | 237.8 | 642.0 | 8.7 | 13.8 | 25.2 | 3.5 | 192.6 | 243.78 | .88 | 25000 | 3357 | 275 | 110 | 4 |
| 508 | 6 2 | 448.9 | 1212.0 | 15.0 | 24.0 | 43.9 | 6.5 | 363.6 | 453.07 | .95 | 46500 | 3150 | 478 | 95 | 3 |
| 508 | 7 2 | 450.7 | 1216.8 | 24.2 | 33.8 | 61.8 | 6.7 | 365.0 | 491.60 | .64 | 47500 | 4340 | 414 | 125 | 1 |
| 508 | 8 1 | 56.3 | 151.9 | .9 | .9 | 1.6 | .5 | 45.6 | 49.47 | 1.70 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 60.3 | 81.91 | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 4 | 125.5 | 338.9 | 20.0 | 9.0 | 16.5 | 1.4 | 101.7 | 148.55 | .23 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 4 | 101.0 | 272.8 | 1.7 | 9.0 | 16.5 | 1.4 | 81.8 | 110.42 | 2.09 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 7 | 64.3 | 173.5 | 1.0 | 3.9 | 7.1 | .8 | 52.1 | 64.79 | 1.97 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 7 | 63.3 | 170.8 | .4 | 3.3 | 6.1 | .8 | 51.3 | 61.81 | 4.60 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 7 | 80.1 | 216.4 | 2.6 | 5.3 | 9.8 | .9 | 64.9 | 83.57 | 1.01 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 7 | 67.2 | 181.3 | .6 | 1.0 | 1.8 | .8 | 54.4 | 58.54 | 3.25 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 7 | 63.0 | 170.2 | .7 | 5.1 | 9.4 | .8 | 51.0 | 67.05 | 2.98 | 5420 | 5780 | 74 | 174 | 3 |
| 96 | 6 7 | 191.1 | 515.9 | 1.4 | 14.5 | 26.5 | 2.9 | 154.8 | 200.13 | 4.61 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 7 | 110.6 | 298.8 | 2.3 | 7.8 | 14.3 | 1.5 | 89.6 | 115.49 | 1.59 | 10840 | 4385 | 166 | 174 | 4 |
| 96 | 8 3 | 152.6 | 412.1 | 2.2 | 16.0 | 29.3 | 2.3 | 123.6 | 173.38 | 2.47 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 5 | 30.8 | 83.1 | .3 | 1.5 | 2.7 | .2 | 24.9 | 29.58 | 3.47 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 3 | 136.6 | 368.7 | 3.1 | 13.9 | 25.4 | 2.0 | 110.6 | 155.02 | 1.56 | 14110 | 6000 | 118 | 74 | 3 |
| 96 | 11 3 | 127.2 | 343.5 | 3.2 | 12.7 | 23.3 | 1.8 | 103.1 | 144.10 | 1.42 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 7 | 63.8 | 172.4 | 1.3 | 5.3 | 9.8 | .8 | 51.7 | 68.85 | 1.69 | 5420 | 6060 | 120 | 174 | 2 |
| 96 | 14 7 | 63.8 | 172.4 | 1.3 | 5.3 | 9.8 | .8 | 51.7 | 68.85 | 1.69 | 5420 | 6000 | 120 | 174 | 3 |

## TABLE 60 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | 1 | 4 | 77.2 | 208.3 | 7.5 | 4.8 | 8.7 | .8 | 62.5 | 84.35 | .35 | 5500 | 5300 | 823 | 250 | 4 |
| 215 | 2 | 4 | 83.7 | 226.0 | 13.4 | 4.2 | 7.7 | .7 | 67.8 | 93.73 | .22 | 5000 | 5100 | 1510 | 350 | 4 |
| 215 | 3 | 2 | 65.5 | 176.8 | 1.4 | 2.6 | 4.8 | .7 | 53.0 | 62.56 | 1.42 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 90.0 | 242.9 | 6.5 | 6.4 | 11.7 | 1.1 | 72.9 | 98.47 | .46 | 7500 | 5200 | 503 | 250 | 3 |
| 962 | 1 | 7 | 100.9 | 272.4 | 1.6 | 12.9 | 23.5 | 1.4 | 81.7 | 121.20 | 2.35 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 236.1 | 637.4 | 3.2 | 26.5 | 48.5 | 3.7 | 191.2 | 273.13 | 2.71 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 38.2 | 103.1 | .0 | .2 | .4 | .4 | 30.9 | 31.85 | 187.38 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 66.6 | 179.8 | .0 | 1.2 | 2.2 | .8 | 53.9 | 58.13 | 71.24 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 91.3 | 246.6 | .6 | 8.5 | 15.6 | 1.3 | 74.0 | 99.86 | 5.67 | 9000 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 48.7 | 131.4 | .4 | 1.1 | 1.9 | .5 | 39.4 | 43.32 | 3.62 | 3600 | 1800 | 127 | 150 | 4 |
| 962 | 7 | 7 | 100.3 | 270.8 | 1.8 | 12.8 | 23.3 | 1.4 | 81.2 | 120.50 | 2.15 | 10000 | 7780 | 52 | 100 | 4 |
| 962 | 8 | 7 | 222.0 | 599.3 | 2.3 | 31.6 | 57.8 | 3.5 | 179.8 | 274.93 | 3.76 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 55.1 | 148.9 | 2.4 | .5 | .9 | .2 | 44.7 | 48.67 | .65 | 1500 | 2040 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 49.3 | 133.2 | 1.9 | .7 | 1.2 | .3 | 40.0 | 43.98 | .75 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 65.1 | 175.7 | 3.6 | .8 | 1.5 | .4 | 52.7 | 59.06 | .51 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 61.2 | 165.2 | 6.2 | 1.7 | 3.1 | .4 | 49.6 | 60.90 | .31 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 92.8 | 250.7 | 9.0 | 4.3 | 7.8 | .9 | 75.2 | 97.19 | .34 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 82.2 | 222.1 | 17.7 | 5.7 | 10.5 | .7 | 66.6 | 101.27 | .18 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 85.0 | 229.4 | 14.0 | 6.9 | 12.7 | .9 | 68.8 | 103.36 | .23 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 493.9 | 1333.4 | 61.1 | 56.3 | 103.0 | 7.3 | 406.0 | 627.73 | .32 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 169.4 | 457.4 | 3.6 | 5.6 | 10.2 | 2.4 | 137.2 | 158.96 | 1.40 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 35.3 | 95.3 | .1 | .7 | 1.2 | .3 | 28.6 | 30.85 | 7.62 | 2000 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 43.8 | 118.3 | 1.1 | 2.8 | 5.1 | .4 | 35.5 | 44.84 | 1.25 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 64.9 | 175.2 | 1.1 | 5.4 | 9.9 | .8 | 52.6 | 69.79 | 1.94 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 79.5 | 214.6 | 2.0 | 7.0 | 12.8 | 1.0 | 64.4 | 87.14 | 1.38 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 54.0 | 145.8 | .9 | 1.0 | 1.9 | .4 | 43.7 | 47.92 | 1.69 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 104.9 | 283.3 | 16.4 | 8.6 | 15.7 | 1.2 | 85.0 | 126.91 | .24 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 224.2 | 605.4 | 21.4 | 22.8 | 41.7 | 3.2 | 181.6 | 270.70 | .40 | 23159 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 54.8 | 147.9 | 1.2 | .9 | 1.6 | .4 | 44.4 | 48.38 | 1.32 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 78.9 | 213.1 | 1.2 | 3.4 | 6.2 | 1.0 | 63.9 | 75.74 | 2.02 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 34.2 | 92.4 | .1 | 2.0 | 3.6 | .3 | 27.7 | 33.67 | 10.69 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 78.8 | 212.8 | 9.9 | 6.2 | 11.4 | .9 | 63.8 | 92.25 | .29 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 92.7 | 250.2 | 9.9 | 8.1 | 14.8 | 1.1 | 75.1 | 108.96 | .35 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 56.9 | 153.5 | 9.9 | 3.1 | 5.6 | .4 | 46.1 | 65.07 | .21 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 51.9 | 140.1 | 9.9 | 2.0 | 3.7 | .3 | 42.0 | 58.00 | .18 | 2000 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 114.3 | 308.6 | 5.4 | 9.0 | 16.5 | 1.5 | 92.6 | 125.09 | .72 | 11600 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 160.5 | 433.3 | 7.0 | 13.5 | 24.8 | 2.3 | 130.0 | 177.63 | .80 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 66.9 | 180.7 | 1.9 | 4.7 | 8.6 | .8 | 54.2 | 70.11 | 1.18 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | [illegible] | 1 | 85.6 | 231.1 | 2.6 | 6.5 | 11.9 | 1.1 | 69.3 | 91.40 | 1.10 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 100.0 | 270.1 | 2.6 | 8.0 | 14.6 | 1.4 | 81.0 | 107.51 | 1.29 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 94.1 | 254.1 | 3.0 | 7.3 | 13.4 | 1.2 | 76.2 | 101.09 | 1.07 | 8900 | 5000 | 162 | 300 | 1 |

## TABLE 60 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST | + ELEC COST | + WATER COST | + CARBON COST | + OTHER COSTS | = ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 909 | 1 | 1 | 53.1 | 143.3 | 2.1 | 2.4 | 4.3 | .5 | 43.0 | 52.22 | .79 | 3586 | 4000 | 461 | 140 | 4 |
| 909 | 2 | 1 | 49.3 | 133.2 | .3 | 2.5 | 4.5 | .5 | 40.0 | 47.77 | 4.71 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 3 | 1 | 49.3 | 133.2 | .3 | 2.5 | 4.5 | .5 | 40.0 | 47.77 | 4.71 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 37.2 | 100.4 | .3 | 1.5 | 2.7 | .3 | 30.1 | 34.88 | 3.44 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 37.2 | 100.4 | .3 | 1.5 | 2.7 | .3 | 30.1 | 34.88 | 3.44 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 83.9 | 226.4 | 1.0 | 4.3 | 7.8 | 1.1 | 67.9 | 82.10 | 2.50 | 7801 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 39.2 | 105.9 | 1.3 | 1.9 | 3.5 | .3 | 31.8 | 38.72 | .95 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 116.6 | 314.7 | 2.6 | 9.6 | 17.6 | 1.6 | 94.4 | 125.91 | 1.51 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 41.1 | 51.89 | 10.87 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 41.1 | 51.69 | 10.87 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 41.1 | 51.89 | 10.87 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 83.0 | 224.1 | .3 | 6.3 | 11.5 | 1.1 | 67.2 | 86.48 | 9.35 | 8000 | 4800 | 17 | 100 | 2 |
| 964 | 5 | 5 | 46.8 | 126.4 | .4 | 3.1 | 5.7 | .5 | 37.9 | 47.57 | 3.74 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 91.2 | 246.1 | .9 | 1.2 | 2.2 | 1.1 | 73.8 | 79.17 | 2.65 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 74.0 | 199.8 | 1.8 | .3 | .5 | .5 | 59.9 | 63.02 | 1.12 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 69.0 | 186.3 | .4 | 1.2 | 2.2 | .8 | 55.9 | 60.45 | 5.04 | 6060 | 1200 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 175.4 | 263.89 | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 96.3 | 259.9 | 1.3 | 11.7 | 21.3 | 1.3 | 78.0 | 113.66 | 2.68 | 9500 | 7488 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 441.2 | 1191.2 | 42.3 | 28.9 | 52.8 | 6.2 | 357.4 | 487.47 | .36 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | 3 | 441.2 | 1191.2 | 42.3 | 28.9 | 52.8 | 6.2 | 357.4 | 487.47 | .36 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 112.3 | 303.3 | 10.3 | 9.8 | 18.0 | 1.4 | 91.0 | 130.56 | .40 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 385.3 | 1040.3 | 2.5 | 44.3 | 81.0 | 6.3 | 312.1 | 446.21 | 5.63 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 262.4 | 708.6 | 20.9 | 26.6 | 48.6 | 3.8 | 212.6 | 312.40 | .47 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 382.8 | 1033.5 | .4 | 44.3 | 81.0 | 6.3 | 310.1 | 442.11 | 31.78 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 59.4 | 160.3 | .1 | .7 | 1.4 | .7 | 48.1 | 50.99 | 14.53 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 41.5 | 112.0 | 2.5 | 1.4 | 2.5 | .3 | 33.6 | 40.32 | .50 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 82.8 | 223.5 | 1.3 | 2.6 | 4.7 | 1.1 | 67.0 | 76.61 | 1.88 | 7500 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 72.3 | 195.2 | 3.6 | 6.1 | 11.1 | .9 | 58.6 | 80.23 | .70 | 6162 | 6000 | 226 | 150 | 2 |
| 45 | 2 | 5 | 183.2 | 494.7 | 11.3 | 22.5 | 41.2 | 2.7 | 148.4 | 226.12 | .63 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 78.1 | 210.9 | 3.1 | 5.6 | 10.3 | .9 | 63.3 | 83.19 | .65 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 101.1 | 272.9 | .1 | .3 | .6 | 1.4 | 81.9 | 84.22 | 41.00 | 10000 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 45.3 | 122.4 | .4 | .6 | 1.1 | .4 | 36.7 | 39.24 | 2.92 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 45.3 | 122.4 | .5 | .7 | 1.4 | .4 | 36.7 | 39.75 | 2.42 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 71.5 | 193.2 | 1.6 | 2.2 | 4.1 | .8 | 56.6 | 66.68 | 1.35 | 6000 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 119.7 | 323.2 | 6.9 | 3.8 | 6.9 | 1.4 | 97.0 | 113.93 | .33 | 10060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 99.1 | 267.5 | 3.6 | 5.9 | 10.7 | 1.3 | 80.3 | 101.73 | .68 | 9263 | 3850 | 233 | 125 | 3 |
| 249 | 7 | 4 | 82.4 | 222.5 | 1.6 | 2.5 | 4.6 | 1.0 | 66.7 | 76.45 | 1.53 | 7300 | 2100 | 246 | 120 | 4 |

## TABLE 60 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 628 | 1 | 1 | 59.6 | 161.0 | .4 | 2.1 | 3.9 | .7 | 48.3 | 55.41 | 4.44 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 51.3 | 138.6 | .6 | 3.2 | 5.8 | .6 | 41.6 | 51.63 | 2.80 | 4000 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 30.7 | 82.9 | .2 | 1.2 | 2.2 | .2 | 24.9 | 28.66 | 3.73 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 163.1 | 440.4 | 4.5 | 12.2 | 22.3 | 2.4 | 132.1 | 173.51 | 1.23 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 161.0 | 434.8 | 3.2 | 12.2 | 22.3 | 2.4 | 130.4 | 170.62 | 1.66 | 17000 | 4380 | 123 | 170 | 2 |
| 799 | 4 | 2 | 79.7 | 215.1 | 1.0 | 1.7 | 3.2 | 1.0 | 64.5 | 71.37 | 2.30 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 40.5 | 109.3 | .6 | .2 | .5 | .2 | 32.8 | 34.38 | 1.74 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 169.5 | 457.6 | 2.8 | 11.2 | 20.5 | 2.5 | 137.3 | 174.27 | 1.97 | 17960 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 59.1 | 159.7 | .7 | 1.1 | 2.1 | .7 | 47.9 | 52.49 | 2.40 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 28.4 | 76.6 | .1 | .5 | .9 | .2 | 23.0 | 24.74 | 5.60 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 48.6 | 131.3 | 4.1 | 2.8 | 5.0 | .4 | 39.4 | 51.71 | .39 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 88.4 | 238.6 | 6.5 | 7.5 | 13.7 | 1.1 | 71.6 | 100.34 | .48 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 42.6 | 114.9 | 2.7 | 2.2 | 4.0 | .3 | 34.5 | 43.62 | .51 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 53.5 | 144.3 | 4.5 | 3.3 | 6.1 | .5 | 43.3 | 57.77 | .40 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 74.2 | 200.2 | 5.0 | 6.0 | 11.0 | .9 | 60.1 | 82.87 | .53 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 68.5 | 184.9 | 3.3 | 5.5 | 10.1 | .8 | 55.5 | 75.20 | .71 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 70.9 | 191.3 | 3.4 | 5.8 | 10.6 | .8 | 57.4 | 78.03 | .73 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 62.9 | 169.8 | 4.8 | 4.5 | 8.3 | .6 | 50.9 | 69.19 | .45 | 4600 | 6000 | 492 | 90 | 3 |
| 953 | 9 | 1 | 59.1 | 159.7 | 4.9 | 4.0 | 7.4 | .6 | 47.9 | 64.76 | .42 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 59.9 | 161.7 | 4.7 | 4.1 | 7.6 | .6 | 48.5 | 65.46 | .44 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 72.4 | 195.4 | 4.8 | 5.8 | 10.6 | .8 | 58.6 | 80.64 | .53 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 207.2 | 559.3 | 6.8 | 22.1 | 40.3 | 3.1 | 167.8 | 240.12 | 1.11 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 198.3 | 535.4 | 6.8 | 21.0 | 38.3 | 3.0 | 160.6 | 229.71 | 1.06 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 91.0 | 245.7 | .2 | 8.9 | 16.2 | 1.3 | 73.7 | 100.26 | 13.93 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 15 | 1 | 91.0 | 245.7 | .2 | 8.9 | 16.2 | 1.3 | 73.7 | 100.26 | 13.93 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 16 | 1 | 54.5 | 147.2 | .2 | 4.4 | 8.1 | .6 | 44.2 | 57.49 | 10.65 | 4500 | 6000 | 17 | 80 | 1 |
| 953 | 17 | 1 | 54.5 | 147.2 | .2 | 4.4 | 8.1 | .6 | 44.2 | 57.49 | 10.65 | 4500 | 6000 | 17 | 80 | 1 |
| 13 | 1 | 1 | 67.5 | 182.2 | .7 | 5.9 | 10.8 | .8 | 54.7 | 72.88 | 3.42 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 44.3 | 119.5 | 1.1 | 3.0 | 5.4 | .4 | 35.8 | 45.68 | 1.37 | 3000 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 59.3 | 160.1 | .6 | 4.9 | 9.0 | .7 | 48.0 | 63.21 | 3.56 | 5000 | 6600 | 59 | 110 | 2 |
| 13 | 4 | 1 | 43.9 | 118.6 | .9 | 3.0 | 5.4 | .4 | 35.6 | 43.22 | 1.66 | 3000 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 93.8 | 253.3 | 2.0 | 8.9 | 16.2 | 1.3 | 76.0 | 104.33 | 1.63 | 9000 | 6600 | 119 | 130 | 1 |
| 13 | 6 | 2 | 108.1 | 291.8 | .8 | 10.8 | 19.8 | 1.5 | 87.5 | 120.51 | 4.79 | 11000 | 6000 | 38 | 120 | 2 |
| 184 | 1 | 1 | 57.6 | 155.6 | 1.7 | 2.9 | 5.4 | .6 | 46.7 | 57.32 | 1.65 | 4470 | 4000 | 233 | 125 | 4 |
| 184 | 2 | 1 | 53.1 | 143.5 | 6.0 | 1.5 | 2.8 | .3 | 43.0 | 53.66 | .28 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 3 | 1 | 53.1 | 143.5 | 6.0 | 1.5 | 2.8 | .3 | 43.0 | 53.66 | .28 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 4 | 1 | 60.7 | 163.8 | 6.0 | 2.4 | 4.3 | .5 | 49.1 | 62.33 | .33 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 92.3 | 249.2 | 3.1 | 3.9 | 7.2 | 1.1 | 74.8 | 90.09 | .92 | 8000 | 3000 | 407 | 120 | 3 |

## TABLE 60 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST NOT INCLUDED)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 431 | 1 | 7 | 55.1 | 148.7 | .1 | .9 | 1.7 | .6 | 44.6 | 47.94 | 16.78 | 4505 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 55.6 | 150.0 | .1 | .9 | 1.6 | .6 | 45.0 | 48.27 | 11.40 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 85.2 | 230.1 | .7 | 3.2 | 5.9 | 1.1 | 69.0 | 79.87 | 3.81 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 101.9 | 275.1 | .3 | 1.3 | 2.4 | 1.4 | 82.5 | 87.87 | 10.30 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 118.9 | 321.2 | 1.0 | 4.6 | 8.5 | 1.7 | 96.3 | 112.15 | 3.40 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 37.9 | 102.3 | .1 | .3 | .5 | .3 | 30.7 | 31.94 | 7.83 | 2250 | 772 | 108 | 200 | 3 |
| 431 | 7 | 5 | 33.9 | 91.5 | 1.3 | 1.2 | 2.2 | .2 | 27.4 | 32.39 | .81 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 59.4 | 160.3 | 4.4 | 5.8 | 10.6 | .6 | 48.1 | 69.57 | .50 | 4430 | 8000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 59.4 | 160.3 | 4.4 | 5.8 | 10.6 | .6 | 48.1 | 69.57 | .50 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 521.2 | 1407.4 | 15.5 | 35.3 | 64.6 | 7.9 | 422.2 | 545.55 | 1.11 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 521.2 | 1407.4 | 15.5 | 35.3 | 64.6 | 7.9 | 422.2 | 545.55 | 1.11 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 521.2 | 1407.4 | 4.0 | 17.7 | 32.4 | 7.9 | 422.2 | 484.25 | 3.82 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 521.2 | 1407.4 | 4.0 | 17.7 | 32.4 | 7.9 | 422.2 | 484.25 | 3.82 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 135.5 | 366.0 | 12.3 | 14.9 | 27.3 | 1.8 | 109.8 | 166.20 | .42 | 13000 | 7000 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 191.1 | 515.9 | 17.6 | 22.2 | 40.5 | 2.7 | 154.8 | 237.81 | .42 | 19300 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 82.5 | 222.7 | 7.1 | 8.0 | 14.7 | 1.0 | 66.8 | 97.60 | .44 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 315.0 | 850.6 | 6.2 | 41.4 | 75.6 | 5.0 | 255.2 | 383.36 | 1.96 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 372.5 | 1005.7 | 7.1 | 49.4 | 90.3 | 6.0 | 301.7 | 454.50 | 2.03 | 43000 | 7000 | 61 | 130 | 3 |

# TABLE 61

## CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1042 | 1 | 7 | 65.7 | 177.4 | 8.8 | 3.9 | 7.1 | .6 | 61.5 | 53.2 | 135.02 | .48 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 | 7 | 199.8 | 539.5 | 75.4 | 15.0 | 28.0 | 1.5 | 326.4 | 161.8 | 809.77 | .34 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 | 3 | 64.4 | 173.9 | 12.0 | 3.6 | 6.6 | .4 | 84.1 | 52.2 | 158.83 | .42 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 | 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 3.2 | 25.1 | 32.39 | 2.22 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 | 1 | 28.1 | 75.9 | .0 | 1.0 | 1.9 | .2 | .3 | 22.8 | 26.19 | 16.76 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 | 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 3.2 | 25.1 | 32.39 | 2.22 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 | 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 3.2 | 25.1 | 32.39 | 2.22 | 1100 | 6760 | 556 | 72 | 4 |
| 904 | 5 | 1 | 31.0 | 83.7 | .5 | 1.2 | 2.2 | .2 | 3.2 | 25.1 | 32.35 | 2.23 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 | 7 | 23.0 | 62.1 | .1 | .3 | .6 | .1 | .6 | 18.6 | 20.36 | 7.22 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 | 3 | 35.4 | 95.6 | .2 | 1.2 | 2.2 | .3 | 1.4 | 28.7 | 33.96 | 5.20 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 | 7 | 42.3 | 114.3 | 1.1 | .4 | .7 | .1 | 7.8 | 34.3 | 44.51 | 1.25 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 | 7 | 47.8 | 129.0 | 5.0 | 1.3 | 2.4 | .2 | 35.2 | 38.7 | 82.91 | .52 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 | 7 | 38.9 | 104.9 | .4 | 2.5 | 4.5 | .4 | 2.5 | 31.5 | 41.65 | 3.65 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 | 7 | 39.4 | 106.4 | .2 | 1.5 | 2.7 | .4 | 1.6 | 31.9 | 38.24 | 5.40 | 2300 | 3600 | 125 | 200 | 2 |
| 1101 | 9 | 7 | 70.5 | 190.2 | 2.2 | .2 | .3 | .0 | 15.1 | 57.1 | 74.83 | 1.09 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 | 3 | 184.1 | 497.0 | 23.1 | 21.3 | 38.9 | 2.5 | 161.6 | 149.1 | 396.48 | .54 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 | 3 | 102.1 | 275.5 | 11.6 | 10.6 | 19.4 | 1.3 | 80.8 | 82.7 | 206.35 | .56 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 | 3 | 85.1 | 229.8 | 10.2 | 8.3 | 15.1 | 1.0 | 71.4 | 68.9 | 174.87 | .54 | 7000 | 7200 | 493 | 250 | 2 |
| 581 | 1 | 1 | 52.8 | 142.5 | 4.8 | 2.7 | 5.0 | .4 | 33.4 | 42.8 | 89.05 | .59 | 2600 | 5960 | 1053 | 200 | 3 |
| 581 | 2 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 3 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 4 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 3 |
| 581 | 5 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 6 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 7 | 8 | 147.2 | 397.3 | 19.5 | 12.3 | 22.5 | 1.8 | 136.2 | 119.2 | 311.43 | .50 | 12560 | 5960 | 801 | 200 | 2 |
| 581 | 8 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 9 | 1 | 146.5 | 395.7 | 19.5 | 12.2 | 22.3 | 1.7 | 136.2 | 118.7 | 310.70 | .50 | 12480 | 5960 | 806 | 200 | 2 |
| 581 | 10 | 2 | 211.4 | 570.8 | 10.4 | 20.3 | 37.0 | 2.9 | 72.4 | 171.3 | 314.32 | .75 | 21000 | 5880 | 434 | 200 | 1 |
| 581 | 11 | 4 | 56.3 | 152.1 | 6.2 | 2.3 | 4.3 | .3 | 43.2 | 45.6 | 101.98 | .52 | 2400 | 5960 | 1777 | 200 | 2 |
| 581 | 12 | 4 | 56.3 | 152.1 | 6.2 | 2.3 | 4.3 | .3 | 43.2 | 45.6 | 101.98 | .52 | 2400 | 5960 | 1777 | 200 | 3 |
| 581 | 13 | 4 | 120.2 | 324.4 | 11.0 | 10.1 | 18.5 | 1.5 | 76.7 | 97.3 | 215.16 | .62 | 10370 | 5960 | 625 | 200 | 2 |
| 581 | 14 | 4 | 78.0 | 210.7 | 8.6 | 5.6 | 10.3 | .8 | 60.4 | 63.2 | 148.77 | .54 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 | 1 | 93.4 | 252.3 | 14.8 | 5.6 | 10.3 | .8 | 103.4 | 75.7 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 | 4 | 52.8 | 142.5 | 4.8 | 2.7 | 5.0 | .4 | 33.4 | 42.8 | 89.05 | .59 | 2600 | 5960 | 1053 | 200 | 3 |
| 702 | 4 | 8 | 147.2 | 397.3 | 19.5 | 12.3 | 22.5 | 1.8 | 136.2 | 119.2 | 311.43 | .50 | 12560 | 5960 | 801 | 200 | 2 |
| 702 | 5 | 4 | 120.2 | 324.4 | 11.0 | 10.1 | 18.5 | 1.5 | 76.7 | 97.3 | 215.10 | .62 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 | 5 | 78.0 | 210.7 | 8.6 | 5.6 | 10.3 | .8 | 60.4 | 63.2 | 148.77 | .54 | 5760 | 5960 | 730 | 200 | 2 |

## TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPH | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 589 | 1 | 7 | 42.6 | 115.1 | 1.5 | 1.8 | 3.3 | .4 | 10.4 | 34.5 | 51.86 | 1.10 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 | 7 | 48.8 | 131.9 | 1.3 | 2.5 | 4.5 | .5 | 9.0 | 39.6 | 57.26 | 1.40 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 | 7 | 54.7 | 147.7 | 3.3 | 2.5 | 4.6 | .5 | 22.8 | 44.3 | 78.01 | .75 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 | 7 | 45.1 | 121.9 | .7 | 2.3 | 4.1 | .4 | 5.2 | 36.6 | 49.34 | 2.09 | 3120 | 4410 | 167 | 220 | 1 |
| 589 | 5 | 7 | 47.7 | 128.8 | 4.7 | 1.3 | 2.4 | .3 | 32.8 | 38.6 | 80.16 | .54 | 1828 | 4410 | 1606 | 210 | 1 |
| 589 | 6 | 7 | 45.0 | 121.5 | .4 | .3 | .5 | .3 | 2.9 | 36.5 | 40.79 | 3.11 | 2292 | 675 | 824 | 160 | 1 |
| | | | | | | | | | | | | | | | | | |
| 1126 | 1 | 1 | 44.5 | 120.1 | .4 | .4 | .8 | .4 | 3.0 | 36.0 | 40.94 | 3.03 | 2500 | 1000 | 586 | 110 | 4 |
| 1126 | 2 | 1 | 50.2 | 135.6 | 3.4 | 2.5 | 4.5 | .4 | 23.8 | 40.7 | 75.23 | .70 | 3000 | 5000 | 670 | 120 | 4 |
| 1126 | 3 | 1 | 48.1 | 129.7 | 1.0 | .6 | 1.1 | .4 | 6.9 | 38.9 | 48.94 | 1.55 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 | 1 | 105.7 | 285.4 | 4.4 | 8.2 | 15.0 | 1.4 | 30.7 | 85.6 | 145.31 | 1.04 | 10000 | 5000 | 242 | 110 | 4 |
| 1126 | 5 | 1 | 68.6 | 185.1 | 5.0 | 3.9 | 7.2 | .7 | 34.7 | 55.5 | 106.99 | .68 | 5000 | 4800 | 610 | 110 | 2 |
| | | | | | | | | | | | | | | | | | |
| 103 | 1 | 1 | 40.4 | 109.2 | .3 | 1.1 | 2.1 | .4 | 2.4 | 32.7 | 39.03 | 3.65 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 | 1 | 63.7 | 172.0 | 1.9 | 4.5 | 8.3 | .7 | 13.5 | 51.6 | 80.59 | 1.31 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 | 1 | 56.3 | 152.0 | 5.2 | 3.3 | 6.1 | .5 | 36.6 | 45.6 | 97.26 | .59 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 | 1 | 64.7 | 174.6 | 2.4 | 5.0 | 9.1 | .7 | 17.0 | 52.4 | 86.52 | 1.12 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 | 1 | 80.6 | 217.6 | 3.6 | 6.8 | 12.5 | .9 | 24.8 | 65.3 | 113.92 | 1.01 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 | 3 | 102.7 | 277.3 | 1.1 | 4.9 | 9.0 | 1.4 | 7.4 | 83.2 | 106.93 | 3.19 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 | 4 | 41.8 | 112.9 | .9 | 1.4 | 2.6 | .4 | 6.1 | 33.9 | 45.22 | 1.63 | 2500 | 3450 | 344 | 150 | 2 |
| | | | | | | | | | | | | | | | | | |
| 865 | 1 | 1 | 36.5 | 98.4 | .5 | .7 | 1.2 | .3 | 3.4 | 29.5 | 35.64 | 2.27 | 2600 | 2036 | 251 | 140 | 4 |
| 865 | 2 | 1 | 69.5 | 187.7 | 2.0 | 1.9 | 3.5 | .8 | 13.8 | 56.3 | 78.37 | 1.25 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 | 1 | 41.0 | 110.8 | 1.0 | .5 | .9 | .3 | 6.9 | 33.2 | 42.90 | 1.36 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 | 1 | 59.9 | 161.8 | 1.5 | 1.6 | 3.0 | .6 | 10.4 | 48.5 | 65.70 | 1.39 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 | 2 | 223.4 | 603.1 | 7.4 | 4.7 | 8.6 | 3.0 | 51.7 | 180.9 | 256.42 | 1.09 | 21700 | 1321 | 534 | 80 | 4 |
| | | | | | | | | | | | | | | | | | |
| 715 | 1 | 2 | 142.5 | 384.7 | 3.0 | 16.6 | 30.3 | 2.1 | 21.3 | 115.4 | 188.72 | 1.95 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 | 1 | 60.2 | 162.6 | 4.2 | 3.7 | 6.7 | .6 | 29.1 | 48.8 | 93.06 | .70 | 4083 | 5481 | 636 | 115 | 2 |
| 715 | 3 | 1 | 64.1 | 173.1 | 2.1 | 2.3 | 4.3 | .6 | 14.6 | 51.9 | 75.88 | 1.14 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 | 1 | 58.6 | 158.1 | .1 | .0 | .1 | .5 | .5 | 47.4 | 48.59 | 22.71 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 | 1 | 70.2 | 189.4 | 4.2 | 5.5 | 10.1 | .8 | 29.7 | 56.8 | 107.19 | .79 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 | 1 | 95.5 | 257.8 | 4.4 | 8.8 | 16.0 | 1.2 | 30.7 | 77.3 | 138.49 | .99 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 | 3 | 210.6 | 568.6 | 16.9 | 16.5 | 30.2 | 2.9 | 117.7 | 170.6 | 354.85 | .66 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 | 3 | 174.7 | 471.6 | 19.1 | 16.2 | 29.6 | 2.3 | 133.2 | 141.5 | 341.91 | .56 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 | 7 | 94.8 | 256.0 | 5.4 | 6.1 | 11.1 | 1.2 | 37.8 | 76.3 | 138.35 | .81 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 | 5 | 94.1 | 254.1 | .8 | 8.4 | 15.3 | 1.3 | 5.9 | 76.2 | 107.86 | 4.05 | 9276 | 5491 | 44 | 150 | 2 |
| | | | | | | | | | | | | | | | | | |
| 425 | 1 | 1 | 76.6 | 206.9 | 3.5 | 3.8 | 7.0 | .9 | 24.7 | 62.1 | 102.06 | .91 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 | 1 | 72.8 | 196.4 | 5.7 | 5.7 | 10.4 | .8 | 40.1 | 58.9 | 121.76 | .67 | 5800 | 6060 | 427 | 140 | 3 |
| 425 | 3 | 1 | 75.8 | 204.8 | 2.5 | 2.6 | 4.8 | .9 | 17.4 | 61.4 | 89.67 | 1.13 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 | 1 | 75.8 | 204.8 | 4.2 | 4.5 | 8.2 | .9 | 29.4 | 61.4 | 108.61 | .81 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 | 1 | 68.9 | 186.0 | 4.4 | 4.0 | 7.3 | .7 | 30.8 | 55.8 | 103.04 | .74 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 | 1 | 107.4 | 290.1 | 4.3 | 7.5 | 13.8 | 1.4 | 30.1 | 87.0 | 144.17 | 1.05 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 | 2 | 105.6 | 285.1 | 5.5 | 2.9 | 5.3 | 1.2 | 38.1 | 85.5 | 138.42 | .80 | 8400 | 2100 | 798 | 225 | 3 |
| 425 | 8 | 2 | 99.6 | 268.8 | 12.7 | 7.0 | 12.8 | 1.1 | 68.5 | 86.6 | 203.00 | .50 | 7660 | 5600 | 882 | 225 | 4 |

TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 425 | 9 2 | 102.6 | 276.9 | 16.8 | 9.7 | 17.8 | 1.1 | 117.4 | 83.1 | 245.86 | .46 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 2 | 106.4 | 287.2 | 12.7 | 9.1 | 16.6 | 1.2 | 88.4 | 86.2 | 214.02 | .53 | 8500 | 6500 | 789 | 225 | 4 |
| 425 | 11 2 | 108.1 | 291.8 | 3.1 | 1.7 | 3.1 | 1.2 | 22.0 | 67.5 | 118.72 | 1.19 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 5 | 89.2 | 240.8 | 6.7 | 10.2 | 18.7 | 1.1 | 46.7 | 72.2 | 155.69 | .73 | 8000 | 7800 | 277 | 250 | 4 |
| 425 | 13 5 | 89.2 | 240.8 | 6.7 | 10.2 | 18.7 | 1.1 | 46.7 | 72.2 | 155.69 | .73 | 8000 | 7800 | 277 | 250 | 2 |
| 425 | 14 3 | 62.4 | 168.5 | 5.3 | 4.3 | 7.8 | .6 | 36.7 | 50.5 | 105.30 | .63 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 1 | 145.6 | 393.1 | 3.3 | 9.8 | 18.0 | 2.1 | 22.8 | 117.9 | 173.94 | 1.68 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 1 | 73.9 | 199.5 | 2.9 | 3.5 | 6.5 | .8 | 20.5 | 59.8 | 94.18 | 1.01 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 1 | 97.7 | 263.8 | 3.0 | 5.3 | 9.7 | 1.3 | 21.1 | 79.1 | 119.56 | 1.25 | 9600 | 3600 | 268 | 140 | 4 |
| 984 | 4 1 | 62.6 | 169.1 | 2.5 | 2.2 | 4.1 | .6 | 17.6 | 50.7 | 77.72 | .97 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 1 | 73.9 | 199.5 | 2.5 | 3.1 | 5.6 | .8 | 17.7 | 59.8 | 89.53 | 1.11 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 2 | 222.8 | 601.5 | 10.1 | 17.4 | 31.7 | 3.2 | 70.3 | 180.4 | 313.10 | .98 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 2 | 121.8 | 328.9 | 9.4 | 6.4 | 11.7 | 1.4 | 66.0 | 98.7 | 193.57 | .65 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 2 | 150.9 | 407.5 | 6.8 | 7.1 | 13.0 | 2.0 | 47.4 | 122.2 | 198.48 | .92 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 2 | 96.9 | 261.6 | 5.9 | 3.1 | 5.7 | 1.0 | 41.2 | 78.5 | 135.36 | .72 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 2 | 150.9 | 407.5 | 7.0 | 7.4 | 13.4 | 2.0 | 48.9 | 122.2 | 200.88 | .90 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 2 | 221.2 | 597.1 | 7.9 | 13.5 | 24.6 | 3.2 | 55.6 | 179.1 | 283.30 | 1.13 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 2 | 53.5 | 144.4 | .6 | 1.4 | 2.6 | .6 | 4.2 | 43.3 | 52.78 | 2.76 | 4000 | 2200 | 228 | 225 | 4 |
| 984 | 13 4 | 72.9 | 196.8 | 6.8 | 4.1 | 7.5 | .7 | 47.5 | 59.1 | 125.69 | .58 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 3 | 136.9 | 369.5 | 12.4 | 6.5 | 11.9 | 1.6 | 86.6 | 110.9 | 229.80 | .58 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 3 | 88.4 | 238.7 | 19.7 | 5.6 | 10.3 | .8 | 137.6 | 71.6 | 245.83 | .39 | 5700 | 6600 | 1325 | 155 | 4 |
| 984 | 16 5 | 88.9 | 240.1 | 2.3 | 7.7 | 14.1 | 1.2 | 15.8 | 72.0 | 113.05 | 1.58 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 5 | 113.5 | 306.4 | 2.2 | 11.9 | 21.7 | 1.6 | 15.5 | 91.9 | 144.91 | 2.05 | 11500 | 6300 | 79 | 245 | 3 |
| 984 | 18 5 | 128.3 | 346.3 | 5.5 | 12.0 | 21.9 | 1.8 | 38.1 | 103.9 | 183.12 | 1.06 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 2 | 222.4 | 600.6 | 8.3 | 11.3 | 20.7 | 3.2 | 58.1 | 160.2 | 281.81 | 1.07 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 2 | 103.2 | 278.6 | 8.3 | 3.9 | 7.1 | 1.1 | 58.1 | 83.6 | 162.07 | .61 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 2 | 302.9 | 818.0 | 6.9 | 13.5 | 24.8 | 4.6 | 48.4 | 245.4 | 343.63 | 1.56 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 5 | 58.8 | 158.7 | 2.6 | 2.8 | 5.0 | .6 | 18.5 | 47.6 | 77.12 | .92 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 5 | 101.2 | 273.2 | 3.2 | 7.6 | 13.8 | 1.3 | 22.2 | 81.9 | 130.03 | 1.29 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 5 | 58.8 | 158.7 | 1.7 | 1.7 | 3.2 | .6 | 11.6 | 47.6 | 66.27 | 1.26 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 5 | 58.8 | 158.7 | 1.7 | 1.7 | 3.2 | .6 | 11.6 | 47.6 | 66.27 | 1.26 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 5 | 434.2 | 1172.4 | 9.5 | 49.2 | 90.0 | 7.0 | 66.5 | 351.7 | 574.02 | 1.90 | 50000 | 6000 | 94 | 100 | 2 |
| 671 | 9 4 | 120.6 | 325.6 | 9.9 | 4.5 | 8.3 | 1.3 | 69.3 | 97.7 | 191.00 | .61 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 4 | 142.0 | 383.4 | 13.2 | 7.9 | 14.4 | 1.7 | 92.4 | 115.0 | 244.60 | .58 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 4 | 121.3 | 327.6 | 13.2 | 6.1 | 11.2 | 1.3 | 92.4 | 98.3 | 222.46 | .53 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 4 | 164.3 | 443.5 | 14.2 | 10.5 | 19.2 | 2.1 | 99.3 | 133.1 | 278.33 | .62 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 4 | 205.1 | 553.8 | 11.6 | 11.5 | 21.0 | 2.8 | 86.9 | 166.1 | 293.86 | .86 | 26600 | 3500 | 488 | 180 | 3 |
| 671 | 14 4 | 333.6 | 900.7 | 16.5 | 29.3 | 54.0 | 5.0 | 115.5 | 270.2 | 490.84 | .93 | 36000 | 5000 | 271 | 180 | 2 |
| 302 | 1 1 | 44.1 | 119.1 | .7 | 3.5 | 6.4 | .4 | 5.2 | 35.7 | 51.96 | 2.19 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 1 | 44.1 | 119.1 | .1 | 3.5 | 6.4 | .4 | .6 | 35.7 | 46.63 | 18.39 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 1 | 62.9 | 170.0 | 1.9 | 6.6 | 12.0 | .7 | 13.1 | 51.6 | 85.27 | 1.43 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 1 | 48.9 | 131.9 | 2.2 | 4.4 | 8.1 | .4 | 13.2 | 37.6 | 69.71 | 1.01 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 1 | 41.8 | 112.9 | 2.3 | 3.6 | 5.5 | .3 | 15.7 | 33.9 | 60.72 | .85 | 2160 | 8544 | 639 | 160 | 2 |

## TABLE 61 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 233 | 1 | 1 | 42.8 | 115.7 | 1.9 | 3.0 | 5.5 | .4 | 13.0 | 34.7 | 58.49 | .99 | 2735 | 6738 | 250 | 90 | 4 |
| 233 | 2 | 1 | 56.1 | 151.5 | 3.1 | 4.8 | 8.8 | .6 | 21.5 | 45.3 | 84.14 | .86 | 4200 | 6952 | 200 | 100 | 4 |
| 233 | 3 | 1 | 40.1 | 108.3 | .5 | .7 | 1.3 | .3 | 3.5 | 32.5 | 38.78 | 2.43 | 2300 | 1826 | 350 | 125 | 3 |
| 233 | 4 | 1 | 110.4 | 298.0 | 4.5 | 9.8 | 17.8 | 1.5 | 31.2 | 89.4 | 154.11 | 1.09 | 10600 | 5600 | 225 | 118 | 2 |
| 233 | 5 | 3 | 377.5 | 1019.2 | 74.3 | 20.8 | 38.0 | 4.3 | 519.2 | 305.6 | 962.43 | .41 | 31000 | 4082 | 1400 | 140 | 3 |
| 233 | 6 | 3 | 746.8 | 2016.5 | 27.9 | 19.8 | 36.1 | 10.6 | 194.9 | 604.9 | 894.31 | 1.01 | 76000 | 1584 | 621 | 93 | 2 |
| 449 | 1 | 3 | 55.8 | 150.7 | 4.3 | .6 | 1.1 | .2 | 29.8 | 45.2 | 81.16 | .60 | 1700 | 2163 | 2661 | 190 | 4 |
| 449 | 2 | 1 | 58.8 | 158.8 | 6.6 | 2.8 | 5.1 | .5 | 46.2 | 47.6 | 108.89 | .32 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 | 1 | 58.8 | 158.8 | 6.4 | 2.6 | 4.8 | .5 | 44.4 | 47.6 | 106.31 | .53 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 | 1 | 58.8 | 158.8 | 5.5 | 2.4 | 4.3 | .5 | 38.2 | 47.6 | 98.52 | .57 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 | 1 | 65.3 | 176.4 | 7.3 | 2.4 | 4.3 | .5 | 50.9 | 52.9 | 118.33 | .51 | 3650 | 3757 | 1157 | 225 | 1 |
| 449 | 6 | 1 | 39.7 | 107.2 | .3 | .1 | .1 | .2 | 1.8 | 32.2 | 34.62 | 4.14 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 | 1 | 58.8 | 158.8 | 5.6 | 2.3 | 4.3 | .5 | 38.9 | 47.6 | 99.22 | .56 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 | 1 | 58.8 | 158.8 | 5.4 | 2.3 | 4.1 | .5 | 37.7 | 47.6 | 97.66 | .57 | 3600 | 3811 | 875 | 120 | 4 |
| 449 | 9 | 1 | 58.8 | 158.8 | 6.9 | 2.8 | 5.2 | .5 | 48.3 | 47.6 | 111.36 | .51 | 3600 | 4770 | 875 | 220 | 4 |
| 205 | 1 | 2 | 208.2 | 562.0 | 11.4 | 9.8 | 18.0 | 2.8 | 79.8 | 168.6 | 290.52 | .80 | 20000 | 3000 | 547 | 200 | 3 |
| 205 | 2 | 2 | 202.1 | 545.6 | 9.1 | 11.8 | 21.6 | 2.8 | 63.8 | 163.7 | 272.81 | .94 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 | 2 | 57.1 | 154.0 | 4.1 | 1.8 | 3.4 | .4 | 28.8 | 46.2 | 84.76 | .65 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 | 2 | 68.6 | 185.3 | 6.0 | 1.2 | 2.1 | .4 | 42.0 | 55.6 | 107.30 | .56 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 | 2 | 63.1 | 170.4 | 8.4 | 2.8 | 5.1 | .4 | 58.3 | 51.1 | 126.02 | .48 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 | 3 | 141.8 | 382.7 | 18.0 | 14.3 | 26.1 | 1.8 | 125.5 | 114.8 | 300.52 | .53 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 | 3 | 140.7 | 379.9 | 18.5 | 14.1 | 25.7 | 1.8 | 129.4 | 114.0 | 303.51 | .52 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 | 3 | 144.5 | 390.0 | 22.5 | 14.1 | 25.7 | 1.6 | 157.0 | 117.0 | 338.10 | .47 | 13600 | 6600 | 602 | 120 | 4 |
| 891 | 8 | 3 | 170.4 | 460.2 | 24.9 | 17.3 | 31.7 | 2.2 | 174.1 | 138.1 | 388.30 | .49 | 16000 | 6600 | 542 | 120 | 1 |
| 676 | 1 | 1 | 69.8 | 188.5 | 1.1 | 4.5 | 8.3 | .9 | 7.4 | 56.5 | 78.68 | 2.35 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 | 1 | 105.2 | 284.1 | 1.1 | 7.8 | 14.2 | 1.5 | 7.4 | 85.2 | 117.16 | 3.50 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 | 1 | 57.8 | 156.1 | 1.1 | 3.4 | 6.3 | .7 | 7.4 | 46.6 | 65.60 | 1.96 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 | 1 | 57.8 | 156.1 | 1.1 | 3.4 | 6.3 | .7 | 7.4 | 46.6 | 65.60 | 1.96 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 | 4 | 110.3 | 297.7 | 1.3 | 5.4 | 9.9 | 1.5 | 9.1 | 89.3 | 116.56 | 2.82 | 11000 | 3000 | 109 | 150 | 2 |
| 333 | 1 | 3 | 99.8 | 269.6 | .2 | 3.1 | 5.7 | 1.4 | 1.5 | 80.9 | 92.87 | 13.33 | 10000 | 1905 | 37 | 120 | 4 |
| 706 | 1 | 1 | 79.2 | 214.0 | 2.7 | 7.4 | 13.5 | 1.0 | 18.8 | 64.2 | 107.55 | 1.26 | 7200 | 6240 | 142 | 220 | 3 |
| 706 | 2 | 1 | 79.2 | 214.0 | 2.3 | 7.4 | 13.5 | 1.0 | 16.2 | 64.2 | 104.59 | 1.42 | 7200 | 6240 | 142 | 220 | 4 |
| 706 | 3 | 1 | 61.3 | 165.5 | 1.2 | 4.3 | 7.8 | .7 | 8.5 | 49.7 | 72.19 | 1.86 | 5100 | 5100 | 129 | 220 | 4 |
| 706 | 4 | 4 | 102.3 | 276.2 | 1.6 | 5.1 | 9.4 | 1.4 | 11.0 | 82.9 | 111.35 | 2.22 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 | 3 | 133.2 | 359.6 | 9.2 | 11.5 | 20.9 | 1.8 | 64.2 | 107.9 | 215.42 | .74 | 12926 | 5400 | 302 | 220 | 2 |
| 645 | 4 | 3 | 104.0 | 280.7 | 4.7 | 8.8 | 16.1 | 1.4 | 33.1 | 84.2 | 148.37 | .78 | 9727 | 5400 | 203 | 236 | 4 |
| 645 | 5 | 7 | 111.4 | 300.9 | 4.0 | 9.7 | 17.7 | 1.5 | 28.3 | 90.3 | 151.50 | 1.16 | 10920 | 5400 | 167 | 230 | 4 |
| 645 | 6 | 7 | 112.8 | 304.6 | 3.1 | 10.0 | 18.3 | 1.6 | 21.7 | 91.4 | 145.99 | 1.48 | 11275 | 5400 | 117 | 188 | 4 |
| 645 | 7 | 7 | 149.4 | 403.4 | 9.1 | 13.1 | 24.0 | 2.1 | 63.4 | 121.0 | 232.63 | .81 | 14869 | 5400 | 293 | 931 | 2 |
| 645 | 8 | 7 | 149.6 | 403.8 | 9.2 | 13.3 | 24.3 | 2.1 | 64.2 | 121.2 | 234.12 | .80 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 | 7 | 84.6 | 228.4 | 6.7 | 6.3 | 11.5 | 1.6 | 47.1 | 66.5 | 141.16 | .66 | 7097 | 5400 | 420 | 132 | 4 |
| 645 | 10 | 7 | 83.2 | 224.6 | 6.7 | 6.1 | 11.2 | 1.9 | 47.1 | 67.4 | 139.37 | .63 | 6919 | 5400 | 439 | 180 | 4 |
| 645 | 11 | 7 | 127.4 | 344.0 | 4.0 | 11.4 | 20.9 | 1.6 | 38.3 | 163.2 | 168.69 | 1.57 | 17915 | 5400 | 141 | 189 | 4 |

# TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 246 | 1 | 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 25.6 | 78.5 | 129.53 | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 | 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 25.6 | 78.5 | 129.53 | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 | 1 | 96.9 | 261.8 | 3.1 | 6.2 | 11.3 | 1.3 | 22.0 | 78.5 | 122.43 | 1.23 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 | 1 | 96.9 | 261.8 | 3.7 | 7.2 | 13.2 | 1.3 | 25.6 | 78.5 | 129.53 | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 | 1 | 96.9 | 261.8 | 3.4 | 6.8 | 12.4 | 1.3 | 24.0 | 78.5 | 126.49 | 1.16 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 | 1 | 96.9 | 261.8 | 4.2 | 8.3 | 15.1 | 1.3 | 29.3 | 78.5 | 136.64 | 1.03 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 | 4 | 131.3 | 354.5 | 11.9 | 11.2 | 20.5 | 1.7 | 83.0 | 106.4 | 234.67 | .62 | 12400 | 5500 | 383 | 150 | 3 |
| 508 | 1 | 5 | 74.8 | 201.9 | 7.2 | 5.6 | 10.2 | .8 | 50.4 | 60.6 | 134.74 | .59 | 5500 | 6166 | 691 | 160 | 3 |
| 508 | 2 | 5 | 140.7 | 379.9 | 11.1 | 11.5 | 21.1 | 1.8 | 77.6 | 114.6 | 237.12 | .67 | 13000 | 5403 | 496 | 140 | 3 |
| 508 | 3 | 2 | 64.7 | 174.6 | 5.6 | 2.8 | 5.0 | .6 | 39.0 | 52.4 | 105.35 | .59 | 4000 | 4191 | 1000 | 225 | 4 |
| 508 | 4 | 6 | 145.3 | 392.2 | 2.1 | 2.1 | 3.8 | 1.8 | 14.3 | 117.7 | 141.85 | 2.18 | 13260 | 971 | 571 | 140 | 4 |
| 508 | 5 | 2 | 237.8 | 642.0 | 8.7 | 13.8 | 25.2 | 3.5 | 61.0 | 192.6 | 304.77 | 1.10 | 25000 | 3357 | 275 | 110 | 4 |
| 508 | 6 | 2 | 448.9 | 1212.0 | 15.0 | 24.0 | 43.9 | 6.5 | 104.7 | 363.6 | 557.74 | 1.17 | 46500 | 3150 | 478 | 95 | 3 |
| 508 | 7 | 2 | 450.7 | 1216.8 | 24.2 | 33.8 | 61.8 | 6.7 | 169.2 | 365.0 | 660.78 | .86 | 47500 | 4340 | 414 | 125 | 1 |
| 508 | 8 | 1 | 56.3 | 151.9 | .9 | .9 | 1.6 | .5 | 6.4 | 45.6 | 55.86 | 1.92 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 | 1 | 74.5 | 201.2 | 5.4 | 5.4 | 9.9 | .8 | 37.8 | 60.3 | 119.66 | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 | 4 | 125.5 | 338.9 | 20.0 | 9.0 | 16.5 | 1.4 | 139.4 | 101.7 | 287.95 | .45 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 | 4 | 101.0 | 272.8 | 1.7 | 9.0 | 16.5 | 1.4 | 11.6 | 81.8 | 122.04 | 2.31 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 | 7 | 64.3 | 173.5 | 1.0 | 3.9 | 7.1 | .6 | 7.2 | 52.1 | 72.03 | 2.19 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 | 7 | 63.3 | 170.8 | .4 | 3.3 | 6.1 | .3 | 3.0 | 51.3 | 64.76 | 4.82 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 | 7 | 80.1 | 216.4 | 2.6 | 5.3 | 9.8 | .9 | 18.3 | 64.9 | 101.84 | 1.23 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 | 7 | 67.2 | 181.3 | .6 | 1.0 | 1.8 | .8 | 4.0 | 54.4 | 62.50 | 3.47 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 | 7 | 63.0 | 170.2 | .7 | 5.1 | 9.4 | .8 | 4.9 | 51.6 | 72.00 | 3.20 | 5420 | 5780 | 74 | 174 | 3 |
| 96 | 6 | 7 | 191.1 | 515.9 | 1.4 | 14.5 | 26.5 | 2.9 | 9.6 | 154.8 | 209.68 | 4.83 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 | 7 | 110.6 | 298.8 | 2.3 | 7.8 | 14.3 | 1.5 | 16.0 | 89.6 | 131.45 | 1.81 | 10840 | 4385 | 166 | 174 | 4 |
| 96 | 8 | 3 | 152.6 | 412.1 | 2.2 | 16.0 | 29.3 | 2.3 | 15.4 | 123.6 | 188.83 | 2.69 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 | 5 | 30.8 | 83.1 | .3 | 1.5 | 2.7 | .2 | 1.9 | 24.9 | 31.45 | 3.69 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 | 3 | 136.6 | 368.7 | 3.1 | 13.9 | 25.4 | 2.0 | 21.9 | 110.6 | 176.88 | 1.78 | 14110 | 6000 | 118 | 74 | 3 |
| 96 | 11 | 3 | 127.2 | 343.5 | 3.2 | 12.7 | 23.3 | 1.8 | 22.3 | 103.1 | 166.41 | 1.64 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 | 7 | 63.8 | 172.4 | 1.3 | 5.3 | 9.8 | .8 | 9.0 | 51.7 | 77.82 | 1.91 | 5420 | 6000 | 120 | 174 | 2 |
| 96 | 14 | 7 | 63.8 | 172.4 | 1.3 | 5.3 | 9.8 | .8 | 9.0 | 51.7 | 77.82 | 1.91 | 5420 | 6000 | 120 | 174 | 3 |
| 215 | 1 | 4 | 77.2 | 208.3 | 7.5 | 4.8 | 8.7 | .8 | 52.7 | 62.5 | 137.07 | .57 | 5500 | 5309 | 823 | 250 | 4 |
| 215 | 2 | 4 | 83.7 | 226.0 | 13.4 | 4.2 | 7.7 | .7 | 53.7 | 67.8 | 167.39 | .44 | 5000 | 5100 | 1516 | 350 | 4 |
| 215 | 3 | 2 | 65.5 | 176.8 | 1.4 | 2.6 | 4.8 | .7 | 9.7 | 53.9 | 72.26 | 1.64 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 90.0 | 242.9 | 6.5 | 6.4 | 11.7 | 1.1 | 45.1 | 72.9 | 143.56 | .76 | 7500 | 5206 | 503 | 250 | 3 |

TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 962 | 1 | 7 | 100.9 | 272.4 | 1.6 | 12.9 | 23.5 | 1.4 | 11.4 | 81.7 | 132.57 | 2.57 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 236.1 | 637.4 | 3.2 | 26.5 | 48.5 | 3.7 | 22.1 | 191.2 | 293.27 | 2.93 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 38.2 | 103.1 | .0 | .2 | .4 | .4 | .0 | 30.9 | 31.69 | 187.60 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 66.6 | 179.8 | .0 | 1.2 | 2.2 | .8 | .2 | 53.9 | 58.31 | 71.46 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 91.3 | 246.6 | .6 | 8.5 | 15.6 | 1.3 | 3.9 | 74.0 | 103.74 | 5.89 | 9060 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 48.7 | 131.4 | .4 | 1.1 | 1.9 | .5 | 2.6 | 39.4 | 45.95 | 3.84 | 3600 | 1800 | 127 | 150 | 4 |
| 962 | 7 | 7 | 100.3 | 270.8 | 1.8 | 12.8 | 23.3 | 1.4 | 12.3 | 81.2 | 132.83 | 2.37 | 16060 | 7780 | 52 | 100 | 4 |
| 962 | 8 | 7 | 222.0 | 599.3 | 2.3 | 31.6 | 57.8 | 3.5 | 16.1 | 179.8 | 291.02 | 3.78 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 55.1 | 148.9 | 2.4 | .5 | .9 | .2 | 16.6 | 44.7 | 65.26 | .87 | 1500 | 2640 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 49.3 | 133.2 | 1.9 | .7 | 1.2 | .3 | 12.9 | 40.0 | 56.90 | .97 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 65.1 | 175.7 | 3.6 | .8 | 1.5 | .4 | 25.4 | 52.7 | 84.51 | .73 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 61.2 | 165.2 | 6.2 | 1.7 | 3.1 | .4 | 43.6 | 49.6 | 104.53 | .53 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 92.8 | 250.7 | 9.0 | 4.3 | 7.8 | .9 | 62.9 | 75.2 | 160.11 | .56 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 82.2 | 222.1 | 17.7 | 5.7 | 10.5 | .7 | 123.4 | 66.6 | 224.69 | .40 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 85.0 | 229.4 | 14.0 | 6.9 | 12.7 | .9 | 98.0 | 68.8 | 201.37 | .45 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 493.9 | 1333.4 | 61.1 | 56.3 | 103.0 | 7.3 | 427.0 | 400.0 | 1054.76 | .54 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 169.4 | 457.4 | 3.6 | 5.6 | 10.2 | 2.4 | 24.9 | 137.2 | 183.91 | 1.62 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 35.3 | 95.3 | .1 | .7 | 1.2 | .3 | .9 | 28.6 | 31.74 | 7.84 | 2000 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 43.8 | 118.3 | 1.1 | 2.8 | 5.1 | .4 | 7.9 | 35.5 | 52.76 | 1.47 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 64.9 | 175.2 | 1.1 | 5.4 | 9.9 | .8 | 7.9 | 52.6 | 77.71 | 2.16 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 79.5 | 214.6 | 2.0 | 7.0 | 12.8 | 1.0 | 13.9 | 64.4 | 101.00 | 1.60 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 54.0 | 145.8 | .9 | 1.0 | 1.9 | .4 | 6.2 | 43.7 | 54.16 | 1.91 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 104.9 | 283.3 | 16.4 | 8.6 | 15.7 | 1.2 | 114.8 | 65.0 | 241.75 | .46 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 224.2 | 605.4 | 21.4 | 22.8 | 41.7 | 3.2 | 149.2 | 181.6 | 419.86 | .62 | 23159 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 54.8 | 147.9 | 1.2 | .9 | 1.6 | .4 | 8.0 | 44.4 | 56.43 | 1.54 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 78.9 | 213.1 | 1.2 | 3.4 | 6.2 | 1.0 | 8.3 | 63.9 | 83.97 | 2.24 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 34.2 | 92.4 | .1 | 2.0 | 3.6 | .3 | .7 | 27.7 | 34.36 | 16.91 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 78.8 | 212.8 | 9.9 | 6.2 | 11.4 | .9 | 69.2 | 63.8 | 161.44 | .51 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 92.7 | 250.2 | 9.9 | 8.1 | 14.8 | 1.1 | 69.2 | 73.1 | 178.15 | .57 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 56.9 | 153.5 | 9.9 | 3.1 | 5.6 | .4 | 69.2 | 46.1 | 134.26 | .43 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 51.9 | 140.1 | 9.9 | 2.0 | 3.7 | .3 | 69.2 | 42.0 | 127.19 | .46 | 2000 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 114.3 | 308.6 | 5.4 | 9.0 | 16.5 | 1.5 | 38.6 | 92.6 | 163.05 | .94 | 11000 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 160.5 | 433.3 | 7.0 | 13.5 | 24.8 | 2.3 | 49.1 | 130.0 | 226.72 | 1.02 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 66.9 | 180.7 | 1.9 | 4.7 | 8.6 | .8 | 13.1 | 54.2 | 83.20 | 1.40 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | 4 | 1 | 85.6 | 231.1 | 2.6 | 6.5 | 11.9 | 1.1 | 16.3 | 69.3 | 169.73 | 1.32 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 100.0 | 270.1 | 2.6 | 8.0 | 14.6 | 1.4 | 18.3 | 81.0 | 125.84 | 1.51 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 94.1 | 254.1 | 3.0 | 7.3 | 13.4 | 1.2 | 20.8 | 76.2 | 121.65 | 1.29 | 8900 | 5000 | 162 | 300 | 1 |
| 909 | 1 | 1 | 53.1 | 143.3 | 2.1 | 2.4 | 4.3 | .5 | 14.5 | 43.0 | 66.74 | 1.01 | 3586 | 4000 | 461 | 140 | 4 |

TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO | &TYPE | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS → | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 909 | 2 | 1 | 49.3 | 133.2 | .3 | 2.5 | 4.5 | .5 | 2.2 | 40.0 | 50.00 | 4.93 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 3 | 1 | 49.3 | 133.2 | .3 | 2.5 | 4.5 | .5 | 2.2 | 40.0 | 50.00 | 4.93 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 37.2 | 100.4 | .3 | 1.5 | 2.7 | .3 | 2.2 | 30.1 | 37.12 | 3.66 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 37.2 | 100.4 | .3 | 1.5 | 2.7 | .3 | 2.2 | 30.1 | 37.12 | 3.66 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 83.9 | 226.4 | 1.0 | 4.3 | 7.8 | 1.1 | 7.2 | 67.9 | 89.31 | 2.72 | 7601 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 39.2 | 105.9 | 1.3 | 1.9 | 3.5 | .3 | 9.0 | 31.8 | 47.72 | 1.17 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 116.6 | 314.7 | 2.6 | 9.6 | 17.6 | 1.6 | 18.4 | 94.4 | 144.27 | 1.73 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 1.1 | 41.1 | 52.94 | 11.09 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 1.1 | 41.1 | 52.94 | 11.09 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 50.7 | 136.9 | .2 | 3.6 | 6.5 | .6 | 1.1 | 41.1 | 52.94 | 11.09 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 83.0 | 224.1 | .3 | 6.3 | 11.5 | 1.1 | 2.0 | 67.2 | 88.51 | 9.57 | 8000 | 4800 | 17 | 100 | 2 |
| 964 | 5 | 5 | 46.8 | 126.4 | .4 | 3.1 | 5.7 | .5 | 2.8 | 37.9 | 50.37 | 3.96 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 91.2 | 246.1 | .9 | 1.2 | 2.2 | 1.1 | 6.1 | 73.8 | 85.28 | 3.07 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 74.0 | 199.8 | 1.8 | .3 | .5 | .5 | 12.4 | 59.9 | 75.39 | 1.34 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 69.0 | 186.3 | .4 | 1.2 | 2.2 | .8 | 2.6 | 55.9 | 63.09 | 5.26 | 6000 | 1200 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 216.6 | 584.8 | .3 | 29.9 | 54.7 | 3.4 | 2.3 | 175.4 | 266.21 | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 96.3 | 259.9 | 1.3 | 11.7 | 21.3 | 1.3 | 9.3 | 78.0 | 123.06 | 2.90 | 9560 | 7468 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 441.2 | 1191.2 | 42.3 | 28.9 | 52.8 | 6.2 | 295.2 | 357.4 | 782.71 | .58 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | 3 | 441.2 | 1191.2 | 42.3 | 28.9 | 52.8 | 6.2 | 295.2 | 357.4 | 782.71 | .58 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 112.3 | 303.3 | 10.3 | 9.8 | 18.0 | 1.4 | 72.1 | 91.0 | 202.70 | .62 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 385.3 | 1040.3 | 2.5 | 44.3 | 81.0 | 6.3 | 17.4 | 312.1 | 463.66 | 5.85 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 262.4 | 708.6 | 20.9 | 26.6 | 48.6 | 3.8 | 145.7 | 212.6 | 458.09 | .69 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 382.8 | 1033.5 | .4 | 44.3 | 81.0 | 6.3 | 3.1 | 310.1 | 445.17 | 32.00 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 59.4 | 160.3 | .1 | .7 | 1.4 | .7 | .8 | 48.1 | 51.76 | 14.75 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 41.5 | 112.0 | 2.5 | 1.4 | 2.5 | .3 | 17.7 | 33.6 | 57.99 | .72 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 82.8 | 223.5 | 1.3 | 2.6 | 4.7 | 1.1 | 8.9 | 67.0 | 85.56 | 2.10 | 7500 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 72.3 | 195.2 | 3.6 | 6.1 | 11.1 | .9 | 25.1 | 58.6 | 105.36 | .92 | 6182 | 6600 | 226 | 150 | 2 |
| 45 | 2 | 5 | 183.2 | 494.7 | 11.3 | 22.5 | 41.2 | 2.7 | 78.8 | 148.4 | 304.96 | .85 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 78.1 | 210.9 | 3.1 | 5.6 | 10.3 | .9 | 21.4 | 63.3 | 104.62 | 1.07 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 101.1 | 272.9 | .1 | .3 | .6 | 1.4 | .5 | 81.9 | 84.67 | 41.22 | 10000 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 45.3 | 122.4 | .4 | .6 | 1.1 | .4 | 3.0 | 36.7 | 42.19 | 3.14 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 45.3 | 122.4 | .5 | .7 | 1.4 | .4 | 3.6 | 36.7 | 43.36 | 2.64 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 71.5 | 193.2 | 1.6 | 2.2 | 4.1 | .6 | 10.9 | 58.0 | 77.56 | 1.57 | 6000 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 119.7 | 323.2 | 6.9 | 3.8 | 6.9 | 1.4 | 48.3 | 97.0 | 164.43 | .73 | 10060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 99.1 | 267.5 | 3.6 | 5.9 | 10.7 | 1.3 | 25.3 | 60.3 | 127.04 | 1.10 | 9263 | 3850 | 233 | 125 | 3 |
| 249 | 7 | 4 | 82.4 | 222.5 | 1.6 | 2.5 | 4.6 | 1.0 | 11.0 | 66.7 | 87.42 | 1.75 | 7300 | 2100 | 246 | 120 | 4 |

TABLE 61 (Continued)

CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 628 | 1 | 1 | 59.6 | 161.0 | .4 | 2.1 | 3.9 | .7 | 2.7 | 48.3 | 58.16 | 4.66 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 51.3 | 138.6 | .6 | 3.2 | 5.8 | .6 | 4.1 | 41.6 | 55.69 | 3.02 | 4000 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 30.7 | 82.9 | .2 | 1.2 | 2.2 | .2 | 1.7 | 24.9 | 30.35 | 3.95 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 163.1 | 440.4 | 4.5 | 12.2 | 22.3 | 2.4 | 31.1 | 132.1 | 204.63 | 1.45 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 161.0 | 434.8 | 3.2 | 12.2 | 22.3 | 2.4 | 22.7 | 130.4 | 193.27 | 1.88 | 17000 | 4380 | 123 | 170 | 2 |
| 799 | 4 | 2 | 79.7 | 215.1 | 1.0 | 1.7 | 3.2 | 1.0 | 6.8 | 64.5 | 78.21 | 2.52 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 40.5 | 109.3 | .6 | .2 | .5 | .2 | 4.4 | 32.8 | 38.73 | 1.96 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 169.5 | 457.6 | 2.8 | 11.2 | 20.5 | 2.5 | 19.5 | 137.3 | 193.74 | 2.19 | 17960 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 59.1 | 159.7 | .7 | 1.1 | 2.1 | .7 | 4.8 | 47.7 | 57.31 | 2.62 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 28.4 | 76.6 | .1 | .5 | .9 | .2 | 1.0 | 23.0 | 25.72 | 5.82 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 48.6 | 131.3 | 4.1 | 2.8 | 5.0 | .4 | 28.9 | 39.4 | 80.62 | .61 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 88.4 | 238.6 | 6.5 | 7.5 | 13.7 | 1.1 | 45.5 | 71.6 | 145.88 | .70 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 42.6 | 114.9 | 2.7 | 2.2 | 4.0 | .3 | 19.0 | 34.5 | 62.58 | .73 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 53.5 | 144.3 | 4.5 | 3.3 | 6.1 | .5 | 31.6 | 43.3 | 89.42 | .62 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 74.2 | 200.2 | 5.0 | 6.0 | 11.0 | .9 | 34.6 | 60.1 | 117.46 | .75 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 68.5 | 184.9 | 3.3 | 5.5 | 10.1 | .8 | 23.3 | 55.5 | 98.48 | .93 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 70.9 | 191.3 | 3.4 | 5.8 | 10.6 | .8 | 23.6 | 57.4 | 101.64 | .95 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 62.9 | 169.8 | 4.8 | 4.5 | 8.3 | .6 | 33.5 | 50.9 | 102.72 | .67 | 4600 | 6000 | 492 | 90 | 3 |
| 953 | 9 | 1 | 59.1 | 159.7 | 4.9 | 4.0 | 7.4 | .6 | 34.0 | 47.9 | 98.75 | .64 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 59.9 | 161.7 | 4.7 | 4.1 | 7.6 | .6 | 32.6 | 48.5 | 98.07 | .66 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 72.4 | 195.4 | 4.8 | 5.8 | 10.6 | .8 | 33.4 | 58.6 | 114.00 | .75 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 207.2 | 559.3 | 6.8 | 22.1 | 40.3 | 3.1 | 47.6 | 167.8 | 287.67 | 1.33 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 198.3 | 535.4 | 6.8 | 21.0 | 38.3 | 3.0 | 47.6 | 160.6 | 277.27 | 1.28 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 91.0 | 245.7 | .2 | 8.9 | 16.2 | 1.3 | 1.6 | 73.7 | 101.85 | 14.15 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 15 | 1 | 91.0 | 245.7 | .2 | 8.9 | 16.2 | 1.3 | 1.6 | 73.7 | 101.85 | 14.15 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 16 | 1 | 54.5 | 147.2 | .2 | 4.4 | 8.1 | .6 | 1.2 | 44.2 | 58.68 | 10.87 | 4500 | 6000 | 17 | 80 | 1 |
| 953 | 17 | 1 | 54.5 | 147.2 | .2 | 4.4 | 8.1 | .6 | 1.2 | 44.2 | 58.68 | 10.87 | 4500 | 6000 | 17 | 80 | 1 |
| 13 | 1 | 1 | 67.5 | 182.2 | .7 | 5.9 | 10.8 | .8 | 4.7 | 54.7 | 77.57 | 3.64 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 44.3 | 119.5 | 1.1 | 3.0 | 5.4 | .4 | 7.4 | 35.8 | 53.03 | 1.59 | 3000 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 59.3 | 160.1 | .6 | 4.9 | 9.0 | .7 | 3.9 | 48.0 | 67.12 | 3.78 | 5000 | 6000 | 59 | 110 | 2 |
| 13 | 4 | 1 | 43.9 | 118.6 | .9 | 3.0 | 5.4 | .4 | 6.0 | 35.6 | 51.20 | 1.88 | 3000 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 93.8 | 253.3 | 2.0 | 8.9 | 16.2 | 1.3 | 14.1 | 76.0 | 118.45 | 1.85 | 9000 | 6000 | 119 | 130 | 1 |
| 13 | 6 | 2 | 108.1 | 291.8 | .8 | 10.8 | 19.8 | 1.5 | 5.5 | 87.5 | 126.04 | 5.01 | 11000 | 6000 | 38 | 120 | 2 |
| 184 | 1 | 1 | 57.6 | 155.6 | 1.7 | 2.9 | 5.4 | .6 | 12.0 | 46.7 | 69.29 | 1.27 | 4470 | 4000 | 233 | 125 | 4 |
| 184 | 2 | 1 | 53.1 | 143.5 | 6.0 | 1.5 | 2.8 | .3 | 41.9 | 43.0 | 95.55 | .50 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 3 | 1 | 53.1 | 143.5 | 6.0 | 1.5 | 2.8 | .3 | 41.9 | 43.0 | 95.55 | .50 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 4 | 1 | 60.7 | 163.8 | 6.0 | 2.4 | 4.3 | .5 | 41.9 | 49.1 | 104.22 | .55 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 92.3 | 249.2 | 3.1 | 3.9 | 7.2 | 1.1 | 21.5 | 74.8 | 111.54 | 1.14 | 8000 | 3000 | 407 | 120 | 3 |

## TABLE 61 (Continued)

### CAPITAL AND ANNUAL COSTS (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC REMOVED FOR CARBON ADSORPTION SYSTEMS

(CONDENSATE DISPOSAL COST INCLUDED)

| PLANT CODE | MACH. NO&TYPE | | CAPITAL COST | INSTLD COST | STEAM COST + | ELEC COST + | WATER COST + | CARBON COST + | DISP COST + | OTHER COSTS = | ANNUAL COST | ANN $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 431 | 1 | 7 | 55.1 | 148.7 | .1 | .9 | 1.7 | .6 | .6 | 44.6 | 48.57 | 17.00 | 4505 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 55.6 | 150.0 | .1 | .9 | 1.6 | .6 | .9 | 45.0 | 49.21 | 11.62 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 85.2 | 230.1 | .7 | 3.2 | 5.9 | 1.1 | 4.6 | 69.0 | 84.49 | 4.03 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 101.9 | 275.1 | .3 | 1.3 | 2.4 | 1.4 | 1.9 | 82.5 | 89.74 | 10.52 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 118.9 | 321.2 | 1.0 | 4.6 | 8.5 | 1.7 | 7.3 | 96.3 | 119.40 | 3.62 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 37.9 | 102.3 | .1 | .3 | .5 | .3 | .9 | 30.7 | 32.84 | 8.05 | 2250 | 772 | 180 | 200 | 3 |
| 431 | 7 | 5 | 33.9 | 91.5 | 1.3 | 1.2 | 2.2 | .2 | 8.8 | 27.4 | 41.16 | 1.03 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 59.4 | 160.3 | 4.4 | 5.8 | 10.6 | .6 | 30.8 | 48.1 | 100.37 | .72 | 4430 | 8000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 59.4 | 160.3 | 4.4 | 5.8 | 10.6 | .6 | 30.8 | 48.1 | 100.37 | .72 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 521.2 | 1407.4 | 15.5 | 35.3 | 64.6 | 7.9 | 108.5 | 422.2 | 654.07 | 1.33 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 521.2 | 1407.4 | 15.5 | 35.3 | 64.6 | 7.9 | 108.5 | 422.2 | 654.07 | 1.33 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 521.2 | 1407.4 | 4.0 | 17.7 | 32.4 | 7.9 | 27.9 | 422.2 | 512.13 | 4.04 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 521.2 | 1407.4 | 4.0 | 17.7 | 32.4 | 7.9 | 27.9 | 422.2 | 512.13 | 4.04 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 135.5 | 366.0 | 12.3 | 14.9 | 27.3 | 1.8 | 86.2 | 109.8 | 252.44 | .64 | 13000 | 7000 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 191.1 | 515.9 | 17.6 | 22.2 | 40.5 | 2.7 | 123.2 | 154.8 | 361.01 | .64 | 19300 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 82.5 | 222.7 | 7.1 | 8.0 | 14.7 | 1.0 | 49.3 | 66.8 | 146.88 | .66 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 315.0 | 850.6 | 6.2 | 41.4 | 75.6 | 5.0 | 43.1 | 255.2 | 426.48 | 2.18 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 372.5 | 1005.7 | 7.1 | 49.4 | 90.3 | 6.0 | 49.3 | 301.7 | 503.78 | 2.25 | 43000 | 7000 | 61 | 130 | 3 |

## TABLE 62

### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 1042 | 1 | 7 | 230.68 | .83 | 75.95 | .27 | 73.56 * | .26 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 | 7 | 746.17 | .31 | 89.54 * | .04 | 283.36 | .12 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 | 3 | 214.59 | .56 | 53.09 * | .14 | 74.69 | .20 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 | 1 | 98.48 | 6.74 | 45.14 | 3.09 | 29.17 * | 2.00 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 | 1 | 88.14 | 63.15 | 43.11 | 30.89 | 25.88 * | 18.54 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 | 1 | 110.21 | 7.54 | 48.19 | 3.30 | 29.17 * | 2.00 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 | 1 | 110.21 | 7.54 | 48.19 | 3.30 | 29.17 * | 2.00 | 1160 | 6760 | 556 | 72 | 4 |
| 904 | 5 | 1 | 109.69 | 7.55 | 48.04 | 3.31 | 29.15 * | 2.01 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 | 7 | 42.16 | 14.94 | 26.04 | 9.23 | 19.76 * | 7.00 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 | 3 | 109.85 | 16.83 | 52.61 | 8.06 | 32.52 * | 4.98 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 | 7 | 44.87 | 1.26 | 24.99 * | .70 | 36.68 | 1.03 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 | 7 | 94.61 | .59 | 31.80 * | .20 | 47.72 | .30 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 | 7 | 190.27 | 16.66 | 79.66 | 6.97 | 39.14 * | 3.43 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 | 7 | 123.34 | 17.41 | 59.21 | 8.36 | 36.68 * | 5.18 | 2500 | 3600 | 125 | 200 | 2 |
| 1101 | 9 | 7 | 22.10 | .32 | 18.38 * | .27 | 59.75 | .87 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 | 3 | 1336.26 | 1.82 | 439.82 | .60 | 234.91 * | .32 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 | 3 | 677.51 | 1.85 | 228.09 | .62 | 125.57 * | .34 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 | 3 | 525.95 | 1.62 | 175.88 | .54 | 103.51 * | .32 | 7000 | 7200 | 493 | 250 | 2 |
| 581 | 1 | 1 | 189.44 | 1.25 | 67.77 | .45 | 55.67 * | .37 | 2800 | 5960 | 1053 | 200 | 3 |
| 581 | 2 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 3 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 4 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 3 |
| 581 | 5 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 6 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 7 | 8 | 791.70 | 1.28 | 253.65 | .41 | 175.21 * | .28 | 12560 | 5960 | 801 | 200 | 2 |
| 581 | 8 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 9 | 1 | 786.25 | 1.27 | 251.61 | .41 | 174.47 * | .26 | 12480 | 5960 | 806 | 200 | 2 |
| 581 | 10 | 2 | 1387.31 | 4.21 | 502.05 | 1.52 | 241.88 * | .73 | 21000 | 5880 | 434 | 200 | 1 |
| 581 | 11 | 4 | 156.20 | .80 | 51.60 * | .26 | 58.76 | .30 | 2400 | 5960 | 1777 | 200 | 2 |
| 581 | 12 | 4 | 156.20 | .80 | 51.60 * | .26 | 58.78 | .30 | 2400 | 5960 | 1777 | 200 | 3 |
| 581 | 13 | 4 | 678.80 | 1.95 | 234.17 | .67 | 138.44 * | .40 | 10370 | 5960 | 625 | 200 | 2 |
| 581 | 14 | 4 | 374.61 | 1.36 | 126.63 | .46 | 88.59 * | .32 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 | 1 | 348.35 | .74 | 100.37 * | .21 | 107.23 | .23 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 | 4 | 189.44 | 1.25 | 67.77 | .45 | 55.67 * | .37 | 2800 | 5960 | 1053 | 200 | 3 |
| 702 | 4 | 8 | 791.70 | 1.28 | 253.65 | .41 | 175.21 * | .28 | 12560 | 5960 | 801 | 200 | 2 |
| 702 | 5 | 4 | 678.80 | 1.95 | 234.17 | .67 | 138.44 * | .40 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 | 5 | 374.61 | 1.36 | 126.63 | .46 | 88.57 * | .32 | 5760 | 5960 | 730 | 200 | 2 |

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*Denotes the least expensive control technique per machine.

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 589 | 1 | 7 | 143.70 | 3.04 | 61.60 | 1.30 | 41.48 * | .88 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 | 7 | 184.67 | 4.53 | 79.18 | 1.94 | 48.29 * | 1.18 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 | 7 | 187.55 | 1.81 | 74.17 | .72 | 55.20 * | .53 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 | 7 | 172.65 | 7.30 | 75.81 | 3.21 | 44.14 * | 1.87 | 3120 | 4419 | 167 | 220 | 1 |
| 589 | 5 | 7 | 91.61 | .61 | 33.45 * | .22 | 47.34 | .32 | 1828 | 4410 | 1606 | 210 | 1 |
| 589 | 6 | 7 | 40.38 | 3.08 | 31.84 * | 2.43 | 37.91 | 2.89 | 2292 | 675 | 824 | 160 | 1 |
| 1126 | 1 | 1 | 52.77 | 3.91 | 36.46 * | 2.70 | 37.97 | 2.81 | 2500 | 1000 | 586 | 110 | 4 |
| 1126 | 2 | 1 | 187.79 | 1.74 | 71.54 | .66 | 51.47 * | .48 | 3000 | 5000 | 670 | 120 | 4 |
| 1126 | 3 | 1 | 65.14 | 2.07 | 38.61 * | 1.23 | 42.01 | 1.33 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 | 1 | 615.49 | 4.41 | 229.81 | 1.65 | 114.62 * | .82 | 10000 | 5000 | 242 | 110 | 4 |
| 1126 | 5 | 1 | 293.66 | 1.86 | 107.89 | .69 | 72.34 * | .46 | 5000 | 4800 | 610 | 110 | 2 |
| 103 | 1 | 1 | 106.90 | 9.99 | 53.41 | 4.99 | 36.68 * | 3.43 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 | 1 | 352.25 | 5.73 | 134.79 | 2.19 | 67.07 * | 1.09 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 | 1 | 232.97 | 1.40 | 82.16 | .49 | 60.71 * | .37 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 | 1 | 369.93 | 4.79 | 139.31 | 1.80 | 69.53 * | .90 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 | 1 | 489.25 | 4.34 | 180.80 | 1.60 | 89.12 * | .79 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 | 3 | 382.47 | 11.43 | 168.10 | 5.02 | 99.57 * | 2.97 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 | 4 | 120.24 | 4.33 | 56.13 | 2.02 | 39.10 * | 1.41 | 2500 | 3450 | 344 | 150 | 2 |
| 865 | 1 | 1 | 68.81 | 4.39 | 39.20 | 2.50 | 32.19 * | 2.05 | 2000 | 2036 | 251 | 140 | 4 |
| 865 | 2 | 1 | 162.00 | 2.57 | 78.48 | 1.25 | 64.53 * | 1.03 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 | 1 | 57.28 | 1.82 | 34.32 * | 1.09 | 35.97 | 1.14 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 | 1 | 141.65 | 3.90 | 69.49 | 1.47 | 55.32 * | 1.17 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 | 2 | 385.40 | 1.64 | 197.72 * | .84 | 204.69 | .87 | 21700 | 1321 | 534 | 80 | 4 |
| 715 | 1 | 2 | 1205.41 | 12.47 | 438.00 | 4.53 | 167.44 * | 1.73 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 | 1 | 274.71 | 2.08 | 100.62 | .76 | 63.69 * | .48 | 4063 | 5481 | 636 | 115 | 2 |
| 715 | 3 | 1 | 184.18 | 2.77 | 81.18 | 1.22 | 61.28 * | .92 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 | 1 | 30.07 * | 14.06 | 35.54 | 16.61 | 48.12 | 22.49 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 | 1 | 415.04 | 3.08 | 149.15 | 1.11 | 77.51 * | .57 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 | 1 | 652.89 | 4.67 | 235.80 | 1.69 | 107.76 * | .77 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 | 3 | 1117.86 | 2.09 | 397.13 | .74 | 237.12 * | .44 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 | 3 | 1074.26 | 1.77 | 358.29 | .59 | 208.66 * | .34 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 | 7 | 392.06 | 2.28 | 153.97 | .90 | 100.58 * | .59 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 | 5 | 621.95 | 23.35 | 240.20 | 9.02 | 102.02 * | 3.83 | 9276 | 5491 | 44 | 150 | 2 |
| 425 | 1 | 1 | 288.41 | 2.56 | 116.14 | 1.03 | 77.31 * | .69 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 | 1 | 410.72 | 2.25 | 145.55 | .80 | 81.64 * | .45 | 5800 | 6000 | 427 | 140 | 3 |
| 425 | 3 | 1 | 209.52 | 2.65 | 94.33 | 1.19 | 72.23 * | .91 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 | 1 | 331.23 | 2.48 | 127.04 | .95 | 79.18 * | .59 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 | 1 | 294.75 | 2.11 | 111.43 | .80 | 72.28 * | .52 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 | 1 | 555.62 | 4.06 | 212.99 | 1.56 | 114.07 * | .63 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 | 2 | 206.41 | 1.19 | 94.49 * | .55 | 100.35 | .58 | 8400 | 2100 | 798 | 225 | 3 |

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

|  |  |  | INCINERATION |  |  |  | CARBON ADSORPTION |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | NO HEAT RECOVERY |  | 70% HEAT RECOVERY |  | (WITHOUT DISPOSAL) |  |  |  |  |  |  |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 425 | 8 | 2 | 443.04 | 1.10 | 144.32 | .36 | 114.18 * | .28 | 7600 | 5600 | 882 | 225 | 4 |
| 425 | 9 | 2 | 606.52 | 1.14 | 185.41 | .35 | 128.48 * | .24 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 | 2 | 582.69 | 1.45 | 192.13 | .48 | 125.64 * | .31 | 8500 | 6500 | 789 | 225 | 4 |
| 425 | 11 | 2 | 139.08 | 1.39 | 81.30 * | .81 | 96.76 | .97 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 | 5 | 670.52 | 3.16 | 235.97 | 1.11 | 109.01 * | .51 | 8000 | 7800 | 277 | 250 | 4 |
| 425 | 13 | 5 | 670.52 | 3.16 | 235.97 | 1.11 | 109.01 * | .51 | 8000 | 7800 | 277 | 250 | 2 |
| 425 | 14 | 3 | 295.25 | 1.77 | 106.49 | .64 | 68.55 * | .41 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 | 1 | 734.50 | 7.08 | 291.49 | 2.81 | 131.13 * | 1.46 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 | 1 | 270.50 | 2.90 | 111.11 | 1.19 | 73.65 * | .79 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 | 1 | 402.14 | 4.19 | 164.15 | 1.71 | 98.46 * | 1.03 | 9000 | 3600 | 268 | 140 | 4 |
| 984 | 4 | 1 | 175.09 | 2.19 | 76.54 | .96 | 60.14 * | .75 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 | 1 | 237.55 | 2.96 | 102.09 | 1.27 | 71.85 * | .89 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 | 2 | 1174.89 | 3.68 | 446.08 | 1.40 | 242.82 * | .76 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 | 2 | 424.17 | 1.41 | 157.89 | .53 | 127.61 * | .43 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 | 2 | 492.57 | 2.29 | 203.71 | .95 | 151.12 * | .70 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 | 2 | 214.80 | 1.15 | 90.02 * | .48 | 94.13 | .50 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 | 2 | 506.78 | 2.28 | 207.54 | .93 | 151.99 * | .68 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 | 2 | 927.13 | 3.71 | 373.63 | 1.49 | 228.30 * | .91 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 | 2 | 121.12 | 6.34 | 63.72 | 3.34 | 48.58 * | 2.54 | 4000 | 2200 | 228 | 225 | 4 |
| 984 | 13 | 4 | 288.79 | 1.34 | 102.23 | .47 | 78.17 * | .36 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 | 3 | 447.40 | 1.14 | 161.19 | .41 | 143.22 * | .36 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 | 3 | 339.40 | .54 | 82.14 * | .13 | 108.02 | .17 | 5700 | 6000 | 1325 | 155 | 4 |
| 984 | 16 | 5 | 511.03 | 7.13 | 201.29 | 2.81 | 97.28 * | 1.36 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 | 5 | 807.52 | 11.44 | 306.55 | 4.34 | 129.38 * | 1.83 | 11500 | 6300 | 79 | 245 | 3 |
| 984 | 18 | 5 | 786.18 | 4.54 | 296.82 | 1.71 | 145.00 * | .84 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 | 2 | 848.18 | 3.21 | 344.42 | 1.30 | 223.73 * | .85 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 | 2 | 284.76 | 1.08 | 107.16 | .41 | 103.99 * | .39 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 | 2 | 1050.83 | 4.78 | 451.91 | 2.05 | 295.23 * | 1.34 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 | 5 | 217.95 | 2.59 | 87.92 | 1.05 | 58.64 * | .70 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 | 5 | 589.71 | 5.85 | 222.97 | 2.21 | 107.85 * | 1.07 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 | 5 | 147.10 | 2.80 | 68.97 | 1.31 | 54.72 * | 1.04 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 | 5 | 147.10 | 2.80 | 68.97 | 1.31 | 54.72 * | 1.04 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 | 5 | 3673.47 | 12.15 | 1326.32 | 4.39 | 507.45 * | 1.68 | 50000 | 6000 | 94 | 100 | 2 |
| 671 | 9 | 4 | 303.05 | .96 | 114.73 * | .36 | 121.70 | .39 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 | 4 | 569.53 | 1.36 | 197.34 | .47 | 152.20 * | .36 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 | 4 | 428.04 | 1.02 | 142.75 | .34 | 130.00 * | .31 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 | 4 | 757.49 | 1.68 | 264.49 | .59 | 179.00 * | .40 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 | 4 | 801.83 | 2.18 | 310.07 | .84 | 213.01 * | .58 | 20000 | 3500 | 488 | 180 | 3 |
| 671 | 14 | 4 | 2052.29 | 3.91 | 752.80 | 1.43 | 375.34 * | .71 | 36000 | 5600 | 271 | 180 | 2 |
| 302 | 1 | 1 | 265.01 | 11.17 | 101.54 | 4.28 | 46.74 * | 1.77 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 | 1 | 267.85 | 105.63 | 104.38 | 41.16 | 46.07 * | 18.17 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 | 1 | 479.44 | 8.05 | 174.05 | 2.92 | 72.16 * | 1.21 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 | 1 | 324.70 | 4.70 | 118.65 | 1.72 | 54.73 * | .79 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 | 1 | 224.71 | 3.14 | 83.17 | 1.16 | 44.98 * | .63 | 2160 | 8544 | 639 | 160 | 2 |

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 233 | 1 1 | 238.88 | 4.04 | 90.55 | 1.53 | 45.49 * | .77 | 2735 | 6738 | 250 | 96 | 4 |
| 233 | 2 1 | 363.90 | 3.73 | 131.72 | 1.35 | 62.68 * | .64 | 4200 | 6952 | 288 | 100 | 4 |
| 233 | 3 1 | 71.51 | 4.48 | 41.22 | 2.58 | 35.26 * | 2.21 | 2300 | 1826 | 350 | 125 | 3 |
| 233 | 4 1 | 724.15 | 5.11 | 265.93 | 1.88 | 122.94 * | .87 | 10600 | 3608 | 225 | 118 | 2 |
| 233 | 5 3 | 1239.17 | .53 | 305.84 * | .13 | 443.19 | .19 | 31000 | 4082 | 1400 | 148 | 3 |
| 233 | 6 3 | 1521.89 | 1.72 | 713.27 | .80 | 699.37 * | .79 | 76000 | 1584 | 621 | 93 | 2 |
| 449 | 1 3 | 45.85 | .34 | 25.85 * | .19 | 51.41 | .38 | 1700 | 2163 | 2661 | 198 | 4 |
| 449 | 2 1 | 185.34 | .88 | 64.50 | .31 | 62.65 * | .30 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 1 | 175.27 | .87 | 62.11 | .31 | 61.91 * | .31 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 1 | 161.46 | .93 | 60.37 | .35 | 60.29 * | .35 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 1 | 153.52 | .66 | 53.73 * | .23 | 67.45 | .29 | 3850 | 3757 | 1157 | 225 | 1 |
| 449 | 6 1 | 25.45 | 3.04 | 22.98 * | 2.75 | 32.78 | 3.92 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 1 | 160.24 | .91 | 59.72 * | .34 | 60.34 | .34 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 1 | 165.64 | .97 | 61.28 | .36 | 59.92 * | .35 | 3600 | 3811 | 875 | 120 | 4 |
| 449 | 9 1 | 184.83 | .84 | 63.55 | .29 | 63.05 * | .29 | 3600 | 4778 | 875 | 220 | 4 |
| 285 | 1 2 | 679.71 | 1.87 | 272.96 | .75 | 210.69 * | .58 | 20000 | 3000 | 547 | 200 | 3 |
| 285 | 2 2 | 821.97 | 2.84 | 324.29 | 1.12 | 209.04 * | .72 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 2 | 131.79 | 1.01 | 51.25 * | .39 | 55.93 | .43 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 2 | 77.27 | .40 | 31.28 * | .16 | 65.25 | .34 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 2 | 175.73 | .66 | 52.60 * | .20 | 67.68 | .26 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 3 | 964.37 | 1.69 | 313.19 | .55 | 175.06 * | .31 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 3 | 978.37 | 1.66 | 313.34 | .53 | 174.14 * | .30 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 3 | 961.53 | 1.35 | 296.50 | .42 | 161.13 * | .25 | 13000 | 6600 | 602 | 120 | 4 |
| 891 | 8 3 | 1190.74 | 1.50 | 372.78 | .47 | 214.23 * | .27 | 16000 | 6600 | 542 | 120 | 1 |
| 676 | 1 1 | 346.69 | 10.34 | 141.04 | 4.21 | 71.31 * | 2.13 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 1 | 584.33 | 17.43 | 233.14 | 6.96 | 109.79 * | 3.28 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 1 | 265.36 | 7.92 | 109.54 | 3.27 | 58.22 * | 1.74 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 1 | 265.36 | 7.92 | 109.54 | 3.27 | 58.22 * | 1.74 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 4 | 418.20 | 10.12 | 182.62 | 4.42 | 107.46 * | 2.60 | 11000 | 3000 | 109 | 150 | 2 |
| 333 | 1 3 | 265.40 | 38.10 | 133.88 | 19.22 | 91.33 * | 13.11 | 10000 | 1905 | 37 | 120 | 4 |
| 786 | 1 1 | 512.41 | 5.99 | 193.64 | 2.26 | 88.74 * | 1.04 | 7200 | 6240 | 142 | 220 | 3 |
| 786 | 2 1 | 513.99 | 6.97 | 195.22 | 2.65 | 88.37 * | 1.20 | 7200 | 6240 | 142 | 220 | 4 |
| 786 | 3 1 | 308.31 | 7.96 | 125.17 | 3.23 | 63.67 * | 1.64 | 5100 | 5100 | 129 | 220 | 4 |
| 786 | 4 4 | 374.71 | 7.48 | 165.23 | 3.30 | 100.33 * | 2.00 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 3 | 768.42 | 2.64 | 278.82 | .96 | 151.27 * | .52 | 12926 | 5400 | 302 | 220 | 2 |
| 645 | 4 3 | 596.79 | 3.96 | 225.91 | 1.50 | 115.23 * | .76 | 9927 | 5400 | 203 | 236 | 4 |
| 645 | 5 7 | 663.20 | 5.16 | 252.01 | 1.97 | 123.23 * | .96 | 10928 | 5400 | 167 | 230 | 4 |

## TABLE 62 (Continued)

### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| PLANT CODE | MACHINE NO | & TYPE | INCINERATION<br>NO HEAT RECOVERY<br>ANNUAL COST | <br><br>ANNUAL $/ LB VOC | <br>70% HEAT RECOVERY<br>ANNUAL COST | <br><br>ANNUAL $/ LB VOC | CARBON ADSORPTION<br>(WITHOUT DISPOSAL)<br>ANNUAL COST | <br><br>ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645 | 6 | 7 | 710.80 | 7.22 | 270.60 | 2.75 | 124.32 * | 1.26 | 11275 | 5400 | 117 | 188 | 4 |
| 645 | 7 | 7 | 389.74 | 1.35 | 209.55 | .73 | 169.27 * | .59 | 14809 | 5400 | 293 | 931 | 2 |
| 645 | 8 | 7 | 892.79 | 3.06 | 326.45 | 1.12 | 169.97 * | .58 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 | 7 | 452.99 | 2.11 | 160.96 | .75 | 94.04 * | .44 | 7097 | 5400 | 428 | 132 | 4 |
| 645 | 10 | 7 | 425.52 | 1.99 | 152.55 | .71 | 92.45 * | .43 | 6919 | 5400 | 439 | 180 | 4 |
| 645 | 11 | 7 | 858.05 | 6.68 | 317.93 | 2.47 | 141.41 * | 1.10 | 12915 | 5400 | 141 | 109 | 4 |
| 246 | 1 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 103.92 * | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 103.92 * | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 | 1 | 465.75 | 4.67 | 183.45 | 1.84 | 100.47 * | 1.01 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 103.92 * | .89 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 | 1 | 506.27 | 4.63 | 195.14 | 1.79 | 102.44 * | .94 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 | 1 | 607.57 | 4.57 | 224.38 | 1.69 | 107.37 * | .81 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 | 4 | 788.43 | 2.07 | 269.99 | .72 | 151.64 * | .40 | 12400 | 5500 | 383 | 150 | 3 |
| 500 | 1 | 5 | 387.46 | 1.69 | 133.07 | .58 | 84.38 * | .37 | 5500 | 6166 | 691 | 160 | 3 |
| 500 | 2 | 5 | 814.77 | 2.31 | 285.10 | .81 | 159.51 * | .45 | 13060 | 5403 | 496 | 140 | 3 |
| 500 | 3 | 2 | 185.97 | 1.05 | 69.50 | .39 | 66.32 * | .37 | 4000 | 4191 | 1000 | 225 | 4 |
| 500 | 4 | 6 | 189.65 | 2.91 | 118.35 * | 1.82 | 127.51 | 1.96 | 13200 | 971 | 571 | 140 | 4 |
| 500 | 5 | 2 | 1033.05 | 3.73 | 408.65 | 1.47 | 243.78 * | .88 | 25000 | 3357 | 275 | 110 | 4 |
| 500 | 6 | 2 | 1817.66 | 3.82 | 721.00 | 1.52 | 453.07 * | .95 | 46500 | 3150 | 478 | 95 | 3 |
| 500 | 7 | 2 | 2440.19 | 3.17 | 893.38 | 1.16 | 491.60 * | .64 | 47500 | 4340 | 414 | 125 | 1 |
| 500 | 8 | 1 | 85.68 | 2.95 | 49.80 | 1.71 | 49.47 * | 1.70 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 | 1 | 345.23 | 2.01 | 129.71 | .76 | 81.91 * | .48 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 | 4 | 516.09 | .81 | 158.42 | .25 | 148.55 * | .23 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 | 4 | 594.06 | 11.25 | 236.38 | 4.48 | 110.42 * | 2.09 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 | 7 | 293.01 | 8.91 | 121.67 | 3.70 | 64.79 * | 1.97 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 | 7 | 257.47 | 19.17 | 112.39 | 8.37 | 61.81 * | 4.60 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 | 7 | 401.44 | 4.84 | 155.88 | 1.88 | 83.57 * | 1.01 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 | 7 | 97.83 | 5.44 | 62.20 | 3.46 | 58.54 * | 3.25 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 | 7 | 381.71 | 16.98 | 150.28 | 6.68 | 67.05 * | 2.98 | 5420 | 3780 | 74 | 174 | 3 |
| 96 | 6 | 7 | 1135.38 | 26.14 | 444.14 | 10.23 | 200.13 * | 4.61 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 | 7 | 570.36 | 7.86 | 226.94 | 3.13 | 115.49 * | 1.59 | 16840 | 4305 | 166 | 174 | 4 |
| 96 | 8 | 3 | 1147.13 | 16.34 | 429.64 | 6.12 | 173.38 * | 2.47 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 | 5 | 120.22 | 14.11 | 54.00 | 6.34 | 29.56 * | 3.47 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 | 3 | 1067.73 | 10.74 | 389.17 | 3.92 | 155.02 * | 1.56 | 14110 | 6000 | 110 | 74 | 3 |
| 96 | 11 | 3 | 947.73 | 9.35 | 348.60 | 3.44 | 144.18 * | 1.42 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 | 7 | 392.60 | 9.62 | 152.81 | 3.73 | 68.85 * | 1.69 | 5420 | 6000 | 120 | 174 | 2 |
| 96 | 14 | 7 | 392.60 | 9.62 | 152.81 | 3.73 | 68.85 * | 1.69 | 5420 | 6000 | 120 | 174 | 3 |

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 215 | 1 | 4 | 308.66 | 1.29 | 108.90 | .45 | 84.35 * | .35 | 5500 | 5300 | 823 | 250 | 4 |
| 215 | 2 | 4 | 221.39 | .52 | 63.70 * | .15 | 93.73 | .22 | 5000 | 5100 | 1510 | 350 | 4 |
| 215 | 3 | 2 | 201.50 | 4.57 | 90.57 | 2.05 | 62.56 * | 1.42 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 422.40 | 2.06 | 156.25 | .76 | 78.47 * | .40 | 7500 | 5200 | 503 | 250 | 3 |
| 962 | 1 | 7 | 971.41 | 18.80 | 348.13 | 6.74 | 121.20 * | 2.35 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 1995.25 | 19.82 | 728.22 | 7.24 | 273.13 * | 2.71 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 39.89 | 234.62 | 33.71 | 196.30 | 31.85 * | 187.30 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 118.94 | 145.76 | 72.51 | 88.86 | 58.13 * | 71.24 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 665.05 | 37.73 | 251.62 | 14.28 | 99.86 * | 5.67 | 9000 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 100.34 | 8.38 | 55.96 | 4.67 | 43.32 * | 3.62 | 3600 | 1000 | 127 | 150 | 4 |
| 962 | 7 | 7 | 962.52 | 17.18 | 344.57 | 6.15 | 120.50 * | 2.15 | 10000 | 7700 | 52 | 100 | 4 |
| 962 | 8 | 7 | 2363.22 | 32.31 | 838.36 | 11.46 | 274.93 * | 3.76 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 47.37 | .63 | 24.98 * | .33 | 48.67 | .65 | 1500 | 2040 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 62.40 | 1.06 | 33.26 * | .57 | 43.98 | .75 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 65.74 | .57 | 31.19 * | .27 | 59.06 | .51 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 111.36 | .56 | 37.80 * | .19 | 60.90 | .31 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 271.44 | .95 | 97.04 * | .34 | 97.19 | .34 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 334.51 | .60 | 86.21 * | .15 | 101.27 | .18 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 412.52 | .93 | 127.08 | .29 | 103.36 * | .23 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 3519.34 | 1.81 | 1160.98 | .60 | 627.73 * | .32 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 389.20 | 3.43 | 194.41 | 1.71 | 158.96 * | 1.40 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 70.43 | 17.39 | 40.73 | 10.06 | 30.85 * | 7.62 | 2000 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 219.59 | 6.10 | 87.23 | 2.42 | 44.84 * | 1.25 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 416.16 | 11.56 | 159.18 | 4.42 | 69.79 * | 1.94 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 529.47 | 8.40 | 198.37 | 3.15 | 87.14 * | 1.38 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 96.65 | 3.41 | 31.00 | 1.08 | 47.92 * | 1.69 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 594.78 | 1.14 | 182.25 | .35 | 126.91 * | .24 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 1455.23 | 2.15 | 504.01 | .74 | 270.70 * | .40 | 23159 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 83.43 | 2.28 | 44.50 * | 1.22 | 48.38 | 1.32 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 268.98 | 7.17 | 119.75 | 3.19 | 75.74 * | 2.02 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 165.34 | 52.49 | 70.12 | 22.26 | 33.67 * | 10.69 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 419.66 | 1.33 | 137.97 | .44 | 92.25 * | .29 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 561.24 | 1.78 | 188.99 | .60 | 108.96 * | .35 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 194.62 | .62 | 54.97 * | .17 | 65.07 | .21 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 124.80 | .40 | 28.93 * | .09 | 58.00 | .18 | 2000 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 604.56 | 3.50 | 231.22 | 1.34 | 125.09 * | .72 | 11000 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 865.92 | 3.88 | 334.37 | 1.50 | 177.63 * | .80 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 326.43 | 5.49 | 131.89 | 2.22 | 70.11 * | 1.18 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | 4 | 1 | 427.59 | 5.13 | 171.87 | 2.06 | 91.40 * | 1.10 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 523.25 | 6.28 | 209.79 | 2.52 | 107.51 * | 1.29 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 479.25 | 5.08 | 191.45 | 2.03 | 101.09 * | 1.07 | 6900 | 5000 | 162 | 300 | 1 |

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION (WITHOUT DISPOSAL) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 909 | 1 | 1 | 184.57 | 2.80 | 76.99 | 1.17 | 52.22 * | .79 | 3586 | 4000 | 461 | 140 | 4 |
| 909 | 2 | 1 | 200.28 | 19.73 | 87.73 | 8.64 | 47.77 * | 4.71 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 3 | 1 | 200.28 | 19.73 | 87.73 | 8.64 | 47.77 * | 4.71 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 125.76 | 12.39 | 58.28 | 5.74 | 34.88 * | 3.44 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 125.76 | 12.39 | 58.28 | 5.74 | 34.88 * | 3.44 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 340.13 | 10.37 | 145.42 | 4.43 | 82.10 * | 2.50 | 7801 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 155.28 | 3.80 | 64.41 | 1.57 | 38.72 * | .95 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 724.28 | 8.68 | 275.73 | 3.30 | 125.91 * | 1.51 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 51.89 * | 10.87 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 51.89 * | 10.87 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 51.89 * | 10.87 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 494.41 | 53.48 | 195.98 | 21.20 | 86.48 * | 9.35 | 8000 | 4800 | 17 | 100 | 2 |
| 964 | 5 | 5 | 250.90 | 19.70 | 101.80 | 8.00 | 47.57 * | 3.74 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 121.30 | 4.37 | 78.93 * | 2.84 | 79.17 | 2.85 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 41.13 | .73 | 34.19 * | .61 | 63.02 | 1.12 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 118.08 | 9.84 | 71.18 | 5.93 | 60.45 * | 5.04 | 6000 | 1200 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 263.89 * | 25.00 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 877.41 | 20.67 | 317.76 | 7.48 | 113.66 * | 2.68 | 9500 | 7488 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 1971.04 | 1.47 | 681.90 | .51 | 487.47 * | .36 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | | 1971.04 | 1.47 | 681.90 | .51 | 487.47 * | .36 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 671.35 | 2.05 | 231.57 | .71 | 130.56 * | .40 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 3166.83 | 39.93 | 1178.50 | 14.86 | 446.21 * | 5.63 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 1910.87 | 2.89 | 652.87 | .99 | 312.40 * | .47 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 3294.85 | 236.83 | 1217.64 | 87.52 | 442.11 * | 31.78 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 84.05 | 23.95 | 57.35 | 16.34 | 50.99 * | 14.53 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 109.66 | 1.37 | 46.32 | .58 | 40.32 * | .50 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 210.34 | 5.17 | 103.59 | 2.55 | 76.61 * | 1.88 | 7500 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 444.04 | 3.90 | 163.98 | 1.44 | 80.23 * | .70 | 6182 | 6000 | 226 | 150 | 2 |
| 45 | 2 | 5 | 1580.49 | 4.41 | 548.74 | 1.53 | 226.12 * | .63 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 415.95 | 4.27 | 158.11 | 1.62 | 83.19 * | .85 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 64.58 * | 31.44 | 72.13 | 35.12 | 84.22 | 41.60 | 10000 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 66.49 | 4.96 | 42.79 | 3.19 | 37.24 * | 2.92 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 76.61 | 4.67 | 45.65 | 2.78 | 39.75 * | 2.42 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 185.45 | 3.75 | 88.71 | 1.79 | 66.68 * | 1.35 | 6900 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 277.54 | 1.26 | 118.32 | .54 | 115.93 * | .53 | 10060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 442.66 | 3.85 | 175.80 | 1.53 | 101.73 * | .89 | 9263 | 3850 | 233 | 125 | 3 |
| 249 | 7 | 4 | 209.60 | 4.20 | 101.47 | 2.04 | 76.45 * | 1.53 | 7300 | 2100 | 246 | 120 | 4 |

## TABLE 62 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 628 | 1 | 1 | 184.15 | 14.76 | 87.43 | 7.01 | 55.41 * | 4.44 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 254.89 | 13.83 | 104.58 | 5.67 | 51.63 * | 2.80 | 4000 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 106.78 | 13.90 | 49.55 | 6.45 | 28.66 * | 3.73 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 881.67 | 6.23 | 343.09 | 2.42 | 173.51 * | 1.23 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 886.85 | 8.61 | 348.26 | 3.38 | 170.62 * | 1.66 | 17000 | 4380 | 123 | 170 | 2 |
| 799 | 4 | 2 | 150.99 | 4.86 | 84.01 | 2.70 | 71.37 * | 2.30 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 37.97 | 1.92 | 28.32 * | 1.43 | 34.38 | 1.74 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 826.87 | 9.34 | 334.51 | 3.78 | 174.27 * | 1.97 | 17000 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 107.56 | 4.92 | 61.70 | 2.82 | 52.49 * | 2.40 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 57.99 | 13.12 | 33.55 | 7.59 | 24.74 * | 5.60 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 210.82 | 1.60 | 75.40 | .57 | 51.71 * | .39 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 558.81 | 2.70 | 195.58 | .94 | 100.34 * | .48 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 170.97 | 1.98 | 64.89 | .75 | 43.62 * | .51 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 252.74 | 1.76 | 89.71 | .62 | 57.77 * | .40 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 452.17 | 2.88 | 161.15 | 1.02 | 82.87 * | .53 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 421.24 | 3.98 | 154.34 | 1.46 | 75.20 * | .71 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 439.58 | 4.09 | 161.28 | 1.50 | 78.03 * | .73 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 340.88 | 2.24 | 121.07 | .79 | 69.19 * | .45 | 4600 | 6000 | 492 | 90 | 3 |
| 953 | 9 | 1 | 301.65 | 1.95 | 106.78 | .69 | 64.76 * | .42 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 311.01 | 2.10 | 110.61 | .75 | 65.46 * | .44 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 436.46 | 2.88 | 156.07 | 1.03 | 85.64 * | .53 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 1648.72 | 7.63 | 593.15 | 2.74 | 240.12 * | 1.11 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 1567.25 | 7.25 | 563.40 | 2.61 | 229.71 * | 1.06 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 692.58 | 96.19 | 261.08 | 36.26 | 100.26 * | 13.93 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 15 | 1 | 692.58 | 96.19 | 261.08 | 36.26 | 100.26 * | 13.93 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 16 | 1 | 355.57 | 65.85 | 138.72 | 25.69 | 57.49 * | 10.65 | 4500 | 6000 | 17 | 80 | 1 |
| 953 | 17 | 1 | 355.57 | 65.85 | 138.72 | 25.69 | 57.49 * | 10.65 | 4500 | 6000 | 17 | 80 | 1 |
| 13 | 1 | 1 | 453.07 | 21.25 | 174.11 | 8.17 | 72.88 * | 3.42 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 233.02 | 6.97 | 92.44 | 2.77 | 45.68 * | 1.37 | 3600 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 383.40 | 21.61 | 148.59 | 8.37 | 63.31 * | 3.56 | 5000 | 6000 | 59 | 110 | 2 |
| 13 | 4 | 1 | 237.05 | 8.72 | 94.11 | 3.46 | 45.22 * | 1.66 | 3600 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 661.00 | 10.30 | 247.21 | 3.85 | 104.33 * | 1.63 | 9000 | 6000 | 119 | 130 | 1 |
| 13 | 6 | 2 | 816.67 | 32.48 | 307.10 | 12.21 | 120.51 * | 4.79 | 11000 | 6000 | 38 | 120 | 2 |
| 184 | 1 | 1 | 231.47 | 4.26 | 96.15 | 1.77 | 57.32 * | 1.05 | 4470 | 4000 | 233 | 125 | 4 |
| 184 | 2 | 1 | 107.16 | .56 | 36.13 * | .19 | 53.66 | .26 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 3 | 1 | 107.16 | .56 | 36.13 * | .19 | 53.66 | .28 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 4 | 1 | 167.27 | .88 | 60.23 * | .32 | 62.33 | .33 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 306.67 | 3.15 | 130.00 | 1.33 | 90.09 * | .92 | 8000 | 3000 | 407 | 120 | 3 |

## TABLE 62 (Continued)

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### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (WITHOUT DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPH | MIN TEMP | AGE GROUP |
| 431 | 1 | 7 | 91.32 | 31.95 | 57.85 | 20.24 | 47.94 * | 16.78 | 4505 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 89.20 | 21.09 | 57.07 | 13.40 | 48.27 * | 11.40 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 253.20 | 12.07 | 121.15 | 5.77 | 79.87 * | 3.61 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 131.40 | 15.42 | 92.68 | 10.87 | 87.87 * | 10.30 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 374.08 | 11.35 | 173.40 | 5.26 | 112.15 * | 3.40 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 43.04 | 10.54 | 33.36 | 8.17 | 31.94 * | 7.83 | 2250 | 772 | 180 | 200 | 3 |
| 431 | 7 | 5 | 105.82 | 2.65 | 46.65 | 1.17 | 32.39 * | .81 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 426.85 | 3.05 | 148.47 | 1.06 | 67.57 * | .50 | 4430 | 8000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 426.85 | 3.05 | 148.47 | 1.06 | 69.57 * | .50 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 2633.53 | 5.34 | 1013.82 | 2.06 | 545.55 * | 1.11 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 2633.53 | 5.34 | 1013.82 | 2.06 | 545.55 * | 1.11 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 1413.89 | 11.16 | 669.72 | 5.29 | 484.25 * | 3.82 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 1413.89 | 11.16 | 669.72 | 5.29 | 484.25 * | 3.82 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 1057.70 | 2.70 | 356.50 | .91 | 166.20 * | .42 | 13000 | 7000 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 1564.11 | 2.79 | 524.25 | .94 | 237.81 * | .42 | 19360 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 576.54 | 2.57 | 197.92 | .88 | 97.60 * | .44 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 3015.35 | 15.30 | 1077.92 | 5.50 | 383.36 * | 1.96 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 3599.40 | 16.07 | 1205.85 | 5.74 | 454.39 * | 2.03 | 43000 | 7000 | 61 | 130 | 3 |

**SUMMARY**

| | | | | | | |
|---|---|---|---|---|---|---|
| Total Dollars | 191.76[a] | 4,745.00 | 71.53[a] | 2,053.00 | 40.45[a] | 1,141.00 |
| Average Dollars | 560,701.00 | 13.88 | 209,139.00 | 6.00 | 118,262.00 | 3.34 |
| Total Asterisks (& Percent) | 2(0.6) | | 51(14.9) | | 289(84.5) | |

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[a] Total annual costs reported in millions.

## TABLE 63

### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 1042 | 1 | 7 | 230.68 | .83 | 75.95 * | .27 | 135.02 | .48 | 4200 | 5610 | 930 | 300 | 4 |
| 332 | 1 | 7 | 746.17 | .31 | 89.54 * | .04 | 809.77 | .34 | 11000 | 8736 | 3013 | 245 | 2 |
| 332 | 2 | 3 | 214.59 | .56 | 53.09 * | .14 | 159.83 | .42 | 2500 | 8736 | 2400 | 200 | 2 |
| 904 | 1 | 1 | 98.48 | 6.74 | 45.14 | 3.09 | 32.39 * | 2.22 | 1100 | 6760 | 556 | 250 | 3 |
| 904 | 2 | 1 | 88.14 | 63.15 | 43.11 | 30.89 | 26.19 * | 18.76 | 1100 | 5720 | 181 | 250 | 4 |
| 904 | 3 | 1 | 110.21 | 7.54 | 48.19 | 3.30 | 32.39 * | 2.22 | 1100 | 6760 | 556 | 72 | 2 |
| 904 | 4 | 1 | 110.21 | 7.54 | 48.19 | 3.30 | 32.39 * | 2.22 | 1100 | 6760 | 556 | 72 | 4 |
| 904 | 5 | 1 | 109.69 | 7.55 | 48.04 | 3.31 | 32.35 * | 2.23 | 1100 | 6720 | 556 | 72 | 2 |
| 1101 | 1 | 7 | 42.16 | 14.94 | 26.04 | 9.23 | 20.38 * | 7.22 | 500 | 4200 | 182 | 250 | 1 |
| 1101 | 4 | 3 | 109.85 | 16.83 | 52.61 | 8.06 | 33.96 * | 5.20 | 2000 | 3619 | 143 | 90 | 2 |
| 1101 | 5 | 7 | 44.87 | 1.26 | 24.99 * | .70 | 44.51 | 1.25 | 800 | 3120 | 2578 | 150 | 2 |
| 1101 | 6 | 7 | 94.61 | .59 | 31.80 * | .20 | 82.91 | .52 | 1500 | 5429 | 2062 | 150 | 2 |
| 1101 | 7 | 7 | 190.27 | 16.66 | 79.66 | 6.97 | 41.65 * | 3.65 | 2500 | 6000 | 73 | 190 | 1 |
| 1101 | 8 | 7 | 123.34 | 17.41 | 59.21 | 8.36 | 38.24 * | 5.40 | 2500 | 3600 | 125 | 200 | 2 |
| 1101 | 9 | 7 | 22.10 | .32 | 18.38 * | .27 | 74.83 | 1.09 | 250 | 4200 | 8854 | 200 | 3 |
| 461 | 1 | 3 | 1336.26 | 1.82 | 439.82 | .60 | 396.48 * | .54 | 18000 | 7200 | 434 | 250 | 1 |
| 461 | 2 | 3 | 677.51 | 1.85 | 228.09 | .62 | 206.35 * | .56 | 9000 | 7200 | 434 | 250 | 2 |
| 461 | 3 | 3 | 525.95 | 1.62 | 175.88 | .54 | 174.87 * | .54 | 7000 | 7200 | 493 | 250 | 2 |
| 581 | 1 | 1 | 189.44 | 1.25 | 67.77 * | .45 | 89.05 | .59 | 2800 | 5960 | 1053 | 200 | 3 |
| 581 | 2 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 3 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 4 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 3 |
| 581 | 5 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 6 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 581 | 7 | 8 | 791.70 | 1.28 | 253.65 * | .41 | 311.43 | .50 | 12560 | 5960 | 801 | 200 | 2 |
| 581 | 8 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 581 | 9 | 1 | 786.25 | 1.27 | 251.61 * | .41 | 310.70 | .50 | 12480 | 5960 | 806 | 200 | 2 |
| 581 | 10 | 2 | 1387.31 | 4.21 | 502.05 | 1.52 | 314.32 * | .95 | 21000 | 5880 | 434 | 200 | 1 |
| 581 | 11 | 4 | 156.20 | .80 | 51.60 * | .26 | 101.98 | .52 | 2400 | 5960 | 1777 | 200 | 2 |
| 581 | 12 | 4 | 156.20 | .80 | 51.60 * | .26 | 101.98 | .52 | 2400 | 5960 | 1777 | 200 | 3 |
| 581 | 13 | 4 | 678.80 | 1.95 | 234.17 | .67 | 215.10 * | .62 | 10370 | 5960 | 625 | 200 | 2 |
| 581 | 14 | 4 | 374.61 | 1.36 | 126.63 * | .46 | 148.99 | .54 | 5760 | 5960 | 730 | 200 | 2 |
| 702 | 1 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 2 |
| 702 | 2 | 1 | 348.35 | .74 | 100.37 * | .21 | 210.66 | .45 | 5760 | 5960 | 1559 | 200 | 1 |
| 702 | 3 | 4 | 189.44 | 1.25 | 67.77 * | .45 | 69.05 | .59 | 2860 | 5960 | 1053 | 200 | 3 |
| 702 | 4 | 8 | 791.70 | 1.28 | 253.65 * | .41 | 311.43 | .50 | 12560 | 5960 | 801 | 200 | 2 |
| 702 | 5 | 4 | 678.80 | 1.95 | 234.17 | .67 | 215.10 * | .62 | 10370 | 5960 | 625 | 200 | 1 |
| 702 | 6 | 5 | 374.61 | 1.36 | 126.63 * | .46 | 148.99 | .54 | 5760 | 5960 | 730 | 200 | 2 |

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* Denotes the least expensive control technique per machine.

## TABLE 63 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 589 | 1 7 | 143.70 | 3.04 | 61.68 | 1.30 | 51.88 * | 1.10 | 2500 | 4410 | 417 | 165 | 3 |
| 589 | 2 7 | 184.67 | 4.53 | 79.18 | 1.94 | 57.26 * | 1.40 | 3405 | 4410 | 264 | 220 | 3 |
| 589 | 3 7 | 187.55 | 1.81 | 74.17 * | .72 | 78.01 | .75 | 3482 | 4410 | 656 | 165 | 2 |
| 589 | 4 7 | 172.65 | 7.30 | 75.81 | 3.21 | 49.34 * | 2.09 | 3120 | 4410 | 167 | 220 | 1 |
| 589 | 5 7 | 91.61 | .61 | 33.45 * | .22 | 80.16 | .54 | 1828 | 4410 | 1606 | 210 | 1 |
| 589 | 6 7 | 40.38 | 3.08 | 31.84 * | 2.43 | 40.79 | 3.11 | 2292 | 675 | 824 | 160 | 1 |
| 1126 | 1 1 | 52.77 | 3.91 | 36.46 * | 2.70 | 40.94 | 3.03 | 2500 | 1000 | 586 | 110 | 4 |
| 1126 | 2 1 | 187.79 | 1.74 | 71.54 * | .66 | 75.23 | .70 | 3000 | 5000 | 670 | 120 | 4 |
| 1126 | 3 1 | 65.14 | 2.07 | 38.61 * | 1.23 | 48.94 | 1.55 | 2500 | 1500 | 911 | 110 | 4 |
| 1126 | 4 1 | 615.49 | 4.41 | 229.81 | 1.65 | 145.31 * | 1.04 | 10000 | 5000 | 242 | 110 | 4 |
| 1126 | 5 1 | 293.66 | 1.86 | 107.89 | .69 | 106.99 * | .68 | 5000 | 4800 | 610 | 110 | 2 |
| 103 | 1 1 | 106.90 | 9.99 | 53.41 | 4.99 | 39.03 * | 3.65 | 2500 | 2797 | 217 | 100 | 4 |
| 103 | 2 1 | 352.25 | 5.73 | 134.79 | 2.19 | 80.59 * | 1.31 | 5000 | 5531 | 321 | 100 | 4 |
| 103 | 3 1 | 232.97 | 1.40 | 82.16 * | .49 | 97.26 | .59 | 3370 | 6018 | 860 | 175 | 3 |
| 103 | 4 1 | 369.93 | 4.79 | 139.31 | 1.80 | 86.52 * | 1.12 | 5000 | 6043 | 378 | 140 | 3 |
| 103 | 5 1 | 489.25 | 4.34 | 180.80 | 1.60 | 113.92 * | 1.01 | 6700 | 6226 | 409 | 175 | 2 |
| 103 | 6 3 | 382.47 | 11.43 | 168.10 | 5.02 | 106.93 * | 3.19 | 10000 | 3000 | 137 | 150 | 1 |
| 103 | 7 4 | 120.24 | 4.33 | 56.13 | 2.02 | 45.22 * | 1.63 | 2500 | 3450 | 344 | 150 | 2 |
| 865 | 1 1 | 68.81 | 4.39 | 39.20 | 2.50 | 35.64 * | 2.27 | 2000 | 2036 | 251 | 140 | 4 |
| 865 | 2 1 | 162.00 | 2.57 | 78.48 | 1.25 | 78.37 * | 1.25 | 5600 | 2098 | 349 | 118 | 4 |
| 865 | 3 1 | 57.28 | 1.82 | 34.32 * | 1.09 | 42.90 | 1.36 | 2058 | 1508 | 661 | 80 | 4 |
| 865 | 4 1 | 141.65 | 3.00 | 69.49 | 1.47 | 65.70 * | 1.39 | 4600 | 2174 | 307 | 113 | 4 |
| 865 | 5 2 | 385.40 | 1.64 | 197.72 * | .84 | 256.42 | 1.09 | 21700 | 1321 | 534 | 80 | 4 |
| 715 | 1 2 | 1205.41 | 12.47 | 438.00 | 4.53 | 188.72 * | 1.95 | 14834 | 6812 | 114 | 145 | 3 |
| 715 | 2 1 | 274.71 | 2.08 | 100.62 | .76 | 93.00 * | .70 | 4083 | 5481 | 636 | 115 | 2 |
| 715 | 3 1 | 184.18 | 2.77 | 81.18 | 1.22 | 75.88 * | 1.14 | 4612 | 3094 | 562 | 155 | 4 |
| 715 | 4 1 | 30.07 * | 14.06 | 35.54 | 16.61 | 48.59 | 22.71 | 3721 | 57 | 768 | 125 | 4 |
| 715 | 5 1 | 415.04 | 3.08 | 149.15 | 1.11 | 107.19 * | .79 | 5416 | 6235 | 477 | 104 | 3 |
| 715 | 6 1 | 652.89 | 4.67 | 235.80 | 1.69 | 138.49 * | .99 | 8657 | 6172 | 299 | 110 | 2 |
| 715 | 7 3 | 1117.86 | 2.09 | 397.13 | .74 | 354.85 * | .66 | 20778 | 4852 | 456 | 190 | 3 |
| 715 | 8 3 | 1074.26 | 1.77 | 358.29 | .59 | 341.91 * | .56 | 16267 | 6068 | 582 | 190 | 2 |
| 715 | 9 7 | 392.06 | 2.28 | 153.97 | .90 | 138.35 * | .81 | 8263 | 4488 | 413 | 300 | 2 |
| 715 | 10 5 | 621.95 | 23.35 | 240.20 | 9.02 | 107.86 * | 4.05 | 9276 | 5491 | 44 | 150 | 2 |
| 425 | 1 1 | 288.41 | 2.56 | 116.14 | 1.03 | 102.06 * | .91 | 6300 | 3700 | 393 | 140 | 3 |
| 425 | 2 1 | 410.72 | 2.25 | 145.55 | .80 | 121.76 * | .67 | 5800 | 6000 | 427 | 140 | 3 |
| 425 | 3 1 | 209.52 | 2.65 | 94.33 | 1.19 | 89.67 * | 1.13 | 6200 | 2600 | 399 | 140 | 3 |
| 425 | 4 1 | 331.23 | 2.48 | 127.04 | .95 | 108.61 * | .81 | 6200 | 4400 | 399 | 140 | 3 |
| 425 | 5 1 | 294.75 | 2.11 | 111.43 | .80 | 103.04 * | .74 | 5300 | 4600 | 467 | 140 | 3 |
| 425 | 6 1 | 555.62 | 4.06 | 212.99 | 1.56 | 144.17 * | 1.05 | 10200 | 4500 | 243 | 140 | 1 |
| 425 | 7 2 | 206.41 | 1.19 | 94.49 * | .55 | 138.42 | .80 | 8400 | 2100 | 798 | 225 | 3 |

## TABLE 63 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 233 | 1 | 1 | 238.88 | 4.04 | 90.55 | 1.53 | 58.49 * | .99 | 2735 | 6738 | 250 | 90 | 4 |
| 233 | 2 | 1 | 363.90 | 3.73 | 131.72 | 1.35 | 84.14 * | .86 | 4200 | 6952 | 288 | 100 | 4 |
| 233 | 3 | 1 | 71.51 | 4.48 | 41.22 | 2.58 | 38.78 * | 2.43 | 2300 | 1826 | 350 | 125 | 3 |
| 233 | 4 | 1 | 724.15 | 5.11 | 265.93 | 1.88 | 154.11 * | 1.09 | 10600 | 5608 | 225 | 118 | 2 |
| 233 | 5 | 3 | 1239.17 | .53 | 305.84 * | .13 | 962.43 | .41 | 31000 | 4082 | 1400 | 140 | 3 |
| 233 | 6 | 3 | 1521.89 | 1.72 | 713.27 * | .80 | 894.31 | 1.01 | 76000 | 1584 | 621 | 93 | 2 |
| 449 | 1 | 3 | 45.85 | .34 | 25.85 * | .19 | 81.18 | .60 | 1700 | 2163 | 2661 | 190 | 4 |
| 449 | 2 | 1 | 185.34 | .88 | 64.50 * | .31 | 108.89 | .52 | 3600 | 4720 | 875 | 210 | 1 |
| 449 | 3 | 1 | 175.27 | .87 | 62.11 * | .31 | 106.31 | .53 | 3600 | 4436 | 875 | 210 | 4 |
| 449 | 4 | 1 | 161.46 | .93 | 60.37 * | .35 | 98.52 | .57 | 3600 | 3990 | 875 | 210 | 4 |
| 449 | 5 | 1 | 153.52 | .66 | 53.73 * | .23 | 118.33 | .51 | 3850 | 3757 | 1157 | 225 | 1 |
| 449 | 6 | 1 | 25.45 | 3.04 | 22.98 * | 2.75 | 34.62 | 4.14 | 1160 | 368 | 1594 | 200 | 4 |
| 449 | 7 | 1 | 160.24 | .91 | 59.72 * | .34 | 99.22 | .56 | 3600 | 3969 | 875 | 210 | 4 |
| 449 | 8 | 1 | 165.64 | .97 | 61.28 * | .36 | 97.66 | .57 | 3600 | 3811 | 875 | 120 | 4 |
| 449 | 9 | 1 | 184.83 | .84 | 63.55 * | .29 | 111.38 | .51 | 3600 | 4778 | 875 | 220 | 4 |
| 285 | 1 | 2 | 679.71 | 1.87 | 272.96 * | .75 | 290.52 | .80 | 20000 | 3000 | 547 | 200 | 3 |
| 285 | 2 | 2 | 821.97 | 2.84 | 324.29 | 1.12 | 272.81 * | .94 | 20000 | 3600 | 430 | 200 | 3 |
| 712 | 1 | 2 | 131.79 | 1.01 | 51.25 * | .39 | 84.76 | .65 | 2700 | 4160 | 1519 | 200 | 4 |
| 712 | 2 | 2 | 77.27 | .40 | 31.28 * | .16 | 107.30 | .56 | 2700 | 2600 | 2532 | 200 | 4 |
| 712 | 3 | 2 | 175.73 | .66 | 52.60 * | .20 | 126.02 | .48 | 2700 | 6240 | 2049 | 200 | 4 |
| 891 | 5 | 3 | 964.37 | 1.69 | 313.19 | .55 | 300.52 * | .53 | 13200 | 6600 | 473 | 162 | 4 |
| 891 | 6 | 3 | 978.37 | 1.66 | 313.34 | .53 | 303.51 * | .52 | 13000 | 6600 | 496 | 120 | 4 |
| 891 | 7 | 3 | 961.53 | 1.35 | 296.50 * | .42 | 338.10 | .47 | 13000 | 6600 | 602 | 120 | 4 |
| 891 | 8 | 3 | 1190.74 | 1.50 | 372.78 * | .47 | 388.30 | .47 | 16000 | 6600 | 542 | 120 | 1 |
| 676 | 1 | 1 | 346.69 | 10.34 | 141.04 | 4.21 | 78.66 * | 2.35 | 6150 | 4500 | 113 | 150 | 3 |
| 676 | 2 | 1 | 584.33 | 17.43 | 233.14 | 6.96 | 117.16 * | 3.50 | 10550 | 4500 | 66 | 150 | 3 |
| 676 | 3 | 1 | 265.36 | 7.92 | 109.54 | 3.27 | 65.60 * | 1.96 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 4 | 1 | 265.36 | 7.92 | 109.54 | 3.27 | 65.60 * | 1.96 | 4644 | 4500 | 149 | 150 | 3 |
| 676 | 5 | 4 | 418.20 | 10.12 | 182.62 | 4.42 | 116.56 * | 2.82 | 11060 | 3000 | 109 | 150 | 2 |
| 333 | 1 | 3 | 265.40 | 38.10 | 133.88 | 19.22 | 92.87 * | 13.33 | 10000 | 1905 | 37 | 120 | 4 |
| 786 | 1 | 1 | 512.41 | 5.99 | 193.64 | 2.26 | 107.55 * | 1.26 | 7200 | 6240 | 142 | 220 | 3 |
| 786 | 2 | 1 | 513.99 | 6.97 | 195.22 | 2.65 | 104.59 * | 1.42 | 7200 | 6240 | 142 | 220 | 4 |
| 786 | 3 | 1 | 308.31 | 7.96 | 125.17 | 3.23 | 72.19 * | 1.66 | 5100 | 5100 | 129 | 220 | 4 |
| 786 | 4 | 4 | 374.71 | 7.48 | 165.23 | 3.30 | 111.35 * | 2.22 | 10000 | 3120 | 123 | 220 | 3 |
| 645 | 3 | 3 | 768.42 | 2.64 | 278.82 | .96 | 215.42 * | .74 | 12926 | 5400 | 302 | 220 | 2 |
| 645 | 4 | 3 | 596.79 | 3.96 | 225.91 | 1.50 | 148.37 * | .78 | 9927 | 5400 | 203 | 236 | 4 |
| 645 | 5 | 7 | 663.20 | 5.16 | 252.81 | 1.97 | 151.56 * | 1.10 | 10928 | 5400 | 167 | 230 | 4 |

## TABLE 63 (Continued)

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### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 425 | 8 | 2 | 443.04 | 1.10 | 144.32 * | .36 | 203.00 | .50 | 7600 | 5600 | 882 | 225 | 4 |
| 425 | 9 | 2 | 606.52 | 1.14 | 185.41 * | .35 | 245.86 | .46 | 8000 | 7400 | 838 | 225 | 4 |
| 425 | 10 | 2 | 582.69 | 1.45 | 192.13 * | .48 | 214.02 | .53 | 8500 | 6500 | 789 | 225 | 4 |
| 425 | 11 | 2 | 139.08 | 1.39 | 81.30 * | .81 | 118.72 | 1.19 | 8700 | 1200 | 778 | 225 | 4 |
| 425 | 12 | 5 | 670.52 | 3.16 | 235.97 | 1.11 | 155.69 * | .73 | 8000 | 7000 | 277 | 250 | 4 |
| 425 | 13 | 5 | 670.52 | 3.16 | 235.97 | 1.11 | 155.69 * | .73 | 8000 | 7000 | 277 | 250 | 2 |
| 425 | 14 | 3 | 295.25 | 1.77 | 106.49 | .64 | 105.30 * | .63 | 4500 | 5800 | 521 | 200 | 3 |
| 984 | 1 | 1 | 734.50 | 7.08 | 291.49 | 2.81 | 173.94 * | 1.68 | 15000 | 4000 | 156 | 140 | 2 |
| 984 | 2 | 1 | 270.50 | 2.90 | 111.11 | 1.19 | 94.18 * | 1.01 | 6000 | 3600 | 391 | 140 | 3 |
| 984 | 3 | 1 | 402.14 | 4.19 | 164.15 | 1.71 | 119.56 * | 1.25 | 9000 | 3600 | 268 | 140 | 4 |
| 984 | 4 | 1 | 175.09 | 2.19 | 76.54 * | .96 | 77.72 | .97 | 4500 | 3000 | 535 | 140 | 3 |
| 984 | 5 | 1 | 237.55 | 2.96 | 102.09 | 1.27 | 89.53 * | 1.11 | 6000 | 3100 | 391 | 140 | 3 |
| 984 | 6 | 2 | 1174.89 | 3.68 | 446.08 | 1.40 | 313.16 * | .98 | 23000 | 4600 | 317 | 225 | 3 |
| 984 | 7 | 2 | 424.17 | 1.41 | 157.89 * | .53 | 193.57 | .65 | 10000 | 3900 | 807 | 225 | 4 |
| 984 | 8 | 2 | 492.57 | 2.29 | 203.71 | .95 | 196.48 * | .92 | 14000 | 3100 | 521 | 225 | 4 |
| 984 | 9 | 2 | 214.80 | 1.15 | 90.02 * | .48 | 135.38 | .72 | 7000 | 2700 | 1042 | 225 | 4 |
| 984 | 10 | 2 | 506.78 | 2.28 | 207.54 | .93 | 200.88 * | .90 | 14000 | 3200 | 521 | 225 | 4 |
| 984 | 11 | 2 | 927.13 | 3.71 | 373.63 | 1.49 | 283.30 * | 1.13 | 22800 | 3600 | 320 | 225 | 1 |
| 984 | 12 | 2 | 121.12 | 6.34 | 63.72 | 3.34 | 52.78 * | 2.76 | 4060 | 2200 | 228 | 225 | 4 |
| 984 | 13 | 4 | 288.79 | 1.34 | 102.23 * | .47 | 125.69 | .58 | 5200 | 4800 | 751 | 150 | 4 |
| 984 | 14 | 3 | 447.40 | 1.14 | 161.19 * | .41 | 229.80 | .58 | 11500 | 3440 | 810 | 150 | 3 |
| 984 | 15 | 3 | 339.40 | .54 | 82.14 * | .13 | 245.83 | .39 | 5700 | 6000 | 1325 | 155 | 4 |
| 984 | 16 | 5 | 511.03 | 7.13 | 201.29 | 2.81 | 113.65 * | 1.58 | 8400 | 5600 | 124 | 290 | 4 |
| 984 | 17 | 5 | 807.52 | 11.44 | 306.55 | 4.34 | 144.71 * | 2.05 | 11300 | 6300 | 79 | 245 | 3 |
| 984 | 18 | 5 | 786.18 | 4.54 | 296.82 | 1.71 | 183.12 * | 1.06 | 12800 | 5700 | 193 | 270 | 3 |
| 671 | 1 | 2 | 848.18 | 3.21 | 344.42 | 1.30 | 281.81 * | 1.07 | 23000 | 3000 | 311 | 120 | 4 |
| 671 | 2 | 2 | 284.76 | 1.08 | 107.16 * | .41 | 162.07 | .61 | 7900 | 3000 | 906 | 100 | 4 |
| 671 | 3 | 2 | 1050.83 | 4.78 | 451.91 | 2.05 | 343.63 * | 1.56 | 33000 | 2500 | 217 | 100 | 2 |
| 671 | 4 | 5 | 217.95 | 2.59 | 87.92 | 1.05 | 77.12 * | .92 | 4200 | 4000 | 465 | 100 | 4 |
| 671 | 5 | 5 | 589.71 | 5.85 | 222.97 | 2.21 | 130.03 * | 1.29 | 9600 | 4800 | 203 | 70 | 4 |
| 671 | 6 | 5 | 147.10 | 2.80 | 68.97 | 1.31 | 66.27 * | 1.26 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 7 | 5 | 147.10 | 2.80 | 68.97 | 1.31 | 66.27 * | 1.26 | 4200 | 2500 | 465 | 100 | 4 |
| 671 | 8 | 5 | 3673.47 | 12.15 | 1326.32 | 4.39 | 574.02 * | 1.90 | 50000 | 6000 | 94 | 100 | 2 |
| 671 | 9 | 4 | 303.05 | .96 | 114.73 * | .36 | 191.00 | .61 | 9200 | 3000 | 1061 | 200 | 4 |
| 671 | 10 | 4 | 569.53 | 1.36 | 197.34 * | .47 | 244.60 | .58 | 12000 | 4000 | 814 | 85 | 4 |
| 671 | 11 | 4 | 428.04 | 1.02 | 142.75 * | .34 | 222.48 | .53 | 9300 | 4000 | 1050 | 100 | 4 |
| 671 | 12 | 4 | 757.49 | 1.68 | 264.49 * | .59 | 278.33 | .62 | 14850 | 4300 | 658 | 95 | 4 |
| 671 | 13 | 4 | 801.03 | 2.18 | 310.07 | .84 | 273.86 * | .80 | 20000 | 3500 | 488 | 180 | 3 |
| 671 | 14 | 4 | 2052.29 | 3.91 | 752.80 | 1.43 | 490.84 * | .93 | 36000 | 5000 | 271 | 180 | 2 |
| 302 | 1 | 1 | 265.01 | 11.17 | 101.54 | 4.28 | 51.76 * | 2.19 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 2 | 1 | 267.05 | 105.63 | 104.38 | 41.16 | 46.63 * | 18.39 | 2500 | 8544 | 552 | 160 | 4 |
| 302 | 3 | 1 | 479.44 | 8.05 | 174.05 | 2.92 | 85.27 * | 1.43 | 4700 | 8544 | 439 | 160 | 4 |
| 302 | 4 | 1 | 324.70 | 4.70 | 118.65 | 1.72 | 69.91 * | 1.01 | 3160 | 8544 | 437 | 160 | 2 |
| 302 | 5 | 1 | 224.71 | 3.14 | 83.17 | 1.16 | 69.72 * | .85 | 2160 | 8544 | 639 | 160 | 2 |

## TABLE 63 (Continued)

### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 645 | 6 | 7 | 710.80 | 7.22 | 270.60 | 2.75 | 145.99 * | 1.48 | 11275 | 5400 | 117 | 188 | 4 |
| 645 | 7 | 7 | 389.74 | 1.35 | 209.55 * | .73 | 232.63 | .81 | 14809 | 5400 | 293 | 931 | 2 |
| 645 | 8 | 7 | 892.79 | 3.06 | 326.45 | 1.12 | 234.12 * | .80 | 14976 | 5400 | 261 | 221 | 4 |
| 645 | 9 | 7 | 452.99 | 2.11 | 160.96 | .75 | 141.16 * | .66 | 7097 | 5400 | 428 | 132 | 4 |
| 645 | 10 | 7 | 425.52 | 1.99 | 152.55 | .71 | 139.57 * | .65 | 6919 | 5400 | 439 | 180 | 4 |
| 645 | 11 | 7 | 858.05 | 6.68 | 317.93 | 2.47 | 169.69 * | 1.32 | 12915 | 5400 | 141 | 109 | 4 |
| 246 | 1 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 129.53 * | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 2 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 129.53 * | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 3 | 1 | 465.75 | 4.67 | 183.45 | 1.84 | 122.43 * | 1.23 | 9000 | 4200 | 239 | 135 | 3 |
| 246 | 4 | 1 | 536.66 | 4.61 | 203.91 | 1.75 | 129.53 * | 1.11 | 9000 | 4900 | 239 | 135 | 3 |
| 246 | 5 | 1 | 506.27 | 4.63 | 195.14 | 1.79 | 126.49 * | 1.16 | 9000 | 4600 | 239 | 135 | 3 |
| 246 | 6 | 1 | 607.57 | 4.57 | 224.38 | 1.69 | 136.64 * | 1.03 | 9000 | 5600 | 239 | 135 | 3 |
| 246 | 7 | 4 | 780.43 | 2.07 | 269.99 | .72 | 234.67 * | .62 | 12400 | 5500 | 383 | 150 | 3 |
| 508 | 1 | 5 | 387.46 | 1.69 | 133.07 * | .58 | 134.74 | .59 | 5500 | 6166 | 691 | 160 | 3 |
| 508 | 2 | 5 | 814.77 | 2.31 | 285.10 | .81 | 237.12 * | .67 | 13000 | 5403 | 496 | 140 | 3 |
| 508 | 3 | 2 | 185.97 | 1.05 | 69.50 * | .39 | 105.35 | .59 | 4000 | 4191 | 1000 | 225 | 4 |
| 508 | 4 | 6 | 189.65 | 2.91 | 118.35 * | 1.82 | 141.85 | 2.18 | 13200 | 971 | 571 | 140 | 4 |
| 508 | 5 | 2 | 1033.85 | 3.73 | 408.65 | 1.47 | 304.77 * | 1.10 | 25000 | 3357 | 275 | 110 | 4 |
| 508 | 6 | 2 | 1817.66 | 3.82 | 721.00 | 1.52 | 557.74 * | 1.17 | 46500 | 3150 | 478 | 95 | 3 |
| 508 | 7 | 2 | 2440.19 | 3.17 | 893.38 | 1.16 | 660.78 * | .86 | 47500 | 4340 | 414 | 125 | 1 |
| 508 | 8 | 1 | 85.68 | 2.95 | 49.80 * | 1.71 | 55.86 | 1.92 | 3600 | 1489 | 686 | 140 | 4 |
| 197 | 1 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 2 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 3 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 4 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 5 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 6 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 7 | 1 | 345.23 | 2.01 | 129.71 | .76 | 119.66 * | .70 | 6000 | 5500 | 423 | 300 | 3 |
| 197 | 8 | 4 | 516.09 | .81 | 158.42 * | .25 | 287.95 | .45 | 10000 | 5500 | 937 | 300 | 3 |
| 197 | 9 | 4 | 594.06 | 11.25 | 236.38 | 4.48 | 122.04 * | 2.31 | 10000 | 5500 | 78 | 300 | 3 |
| 96 | 1 | 7 | 293.01 | 8.91 | 121.67 | 3.70 | 72.03 * | 2.19 | 5420 | 4350 | 144 | 174 | 4 |
| 96 | 2 | 7 | 257.47 | 19.17 | 112.39 | 8.37 | 64.76 * | 4.82 | 5420 | 3725 | 88 | 174 | 3 |
| 96 | 3 | 7 | 401.44 | 4.84 | 155.88 | 1.88 | 101.84 * | 1.23 | 6780 | 4800 | 353 | 136 | 1 |
| 96 | 4 | 7 | 97.83 | 5.44 | 62.20 * | 3.46 | 62.50 | 3.47 | 5420 | 1120 | 306 | 174 | 4 |
| 96 | 5 | 7 | 381.71 | 16.98 | 150.28 | 6.68 | 72.00 * | 3.20 | 5420 | 5780 | 74 | 174 | 3 |
| 96 | 6 | 7 | 1135.38 | 26.14 | 444.14 | 10.23 | 209.68 * | 4.83 | 21060 | 4200 | 49 | 77 | 3 |
| 96 | 7 | 7 | 570.36 | 7.86 | 226.94 | 3.13 | 131.45 * | 1.81 | 10840 | 4385 | 166 | 174 | 4 |
| 96 | 8 | 3 | 1147.13 | 16.34 | 429.64 | 6.12 | 188.83 * | 2.69 | 16260 | 6000 | 72 | 174 | 3 |
| 96 | 9 | 5 | 120.22 | 14.11 | 54.00 | 6.34 | 31.45 * | 3.69 | 1500 | 6000 | 95 | 207 | 3 |
| 96 | 10 | 3 | 1067.73 | 10.74 | 389.17 | 3.72 | 176.88 * | 1.78 | 14110 | 6000 | 118 | 74 | 3 |
| 96 | 11 | 3 | 947.73 | 9.35 | 348.68 | 3.44 | 166.41 * | 1.64 | 12940 | 6000 | 131 | 120 | 3 |
| 96 | 13 | 7 | 392.68 | 9.62 | 152.01 | 3.73 | 77.82 * | 1.71 | 5420 | 6000 | 120 | 174 | 2 |
| 96 | 14 | 7 | 392.68 | 9.62 | 152.61 | 3.73 | 77.82 * | 1.91 | 5420 | 6000 | 120 | 174 | 3 |

## TABLE 63 (Continued)

### ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 215 | 1 | 4 | 300.66 | 1.29 | 108.90 * | .45 | 137.07 | .57 | 5500 | 5300 | 823 | 250 | 4 |
| 215 | 2 | 4 | 221.39 | .52 | 63.70 * | .15 | 187.39 | .44 | 5000 | 5100 | 1510 | 350 | 4 |
| 215 | 3 | 2 | 201.50 | 4.57 | 90.57 | 2.05 | 72.26 * | 1.64 | 5000 | 3200 | 427 | 200 | 4 |
| 215 | 4 | 2 | 422.40 | 2.06 | 156.25 | .76 | 143.56 * | .70 | 7500 | 5200 | 503 | 250 | 3 |
| 962 | 1 | 7 | 971.41 | 18.80 | 348.13 | 6.74 | 132.57 * | 2.57 | 10100 | 7770 | 45 | 100 | 4 |
| 962 | 2 | 7 | 1995.25 | 19.82 | 728.22 | 7.24 | 295.27 * | 2.93 | 26500 | 6100 | 54 | 100 | 2 |
| 962 | 3 | 8 | 39.89 | 234.62 | 33.71 | 198.30 | 31.89 * | 187.60 | 2500 | 500 | 11 | 100 | 3 |
| 962 | 4 | 8 | 118.94 | 145.76 | 72.51 | 88.86 | 58.31 * | 71.46 | 6000 | 1200 | 9 | 100 | 3 |
| 962 | 5 | 6 | 665.05 | 37.73 | 251.62 | 14.28 | 103.74 * | 5.89 | 9000 | 5760 | 25 | 80 | 2 |
| 962 | 6 | 3 | 100.34 | 8.38 | 55.96 | 4.67 | 45.95 * | 3.84 | 3600 | 1800 | 127 | 150 | 4 |
| 962 | 7 | 7 | 962.52 | 17.18 | 344.57 | 6.15 | 132.83 * | 2.37 | 10000 | 7780 | 52 | 100 | 4 |
| 962 | 8 | 7 | 2363.22 | 32.31 | 838.36 | 11.46 | 291.02 * | 3.98 | 25000 | 7700 | 26 | 100 | 4 |
| 1026 | 1 | 1 | 47.37 | .63 | 24.98 * | .33 | 65.26 | .87 | 1500 | 2040 | 2916 | 160 | 2 |
| 1026 | 2 | 1 | 62.40 | 1.06 | 33.26 * | .57 | 56.70 | .97 | 2000 | 2040 | 1562 | 160 | 4 |
| 1026 | 3 | 7 | 65.74 | .57 | 31.19 * | .27 | 84.51 | .73 | 2500 | 2040 | 2461 | 200 | 3 |
| 1026 | 4 | 7 | 111.36 | .56 | 37.80 * | .19 | 104.53 | .53 | 2500 | 4080 | 2109 | 195 | 3 |
| 304 | 1 | 1 | 271.44 | .95 | 97.04 * | .34 | 160.11 | .56 | 6500 | 4000 | 1102 | 250 | 1 |
| 304 | 2 | 8 | 334.51 | .60 | 86.21 * | .15 | 224.69 | .40 | 5300 | 6600 | 1228 | 225 | 3 |
| 304 | 3 | 8 | 412.52 | .93 | 127.08 * | .29 | 201.37 | .45 | 6400 | 6600 | 763 | 275 | 3 |
| 304 | 4 | 8 | 3519.34 | 1.81 | 1160.98 | .60 | 1054.76 * | .54 | 52000 | 6600 | 433 | 250 | 1 |
| 304 | 5 | 2 | 389.20 | 3.43 | 194.41 | 1.71 | 183.91 * | 1.62 | 17000 | 2000 | 310 | 300 | 4 |
| 290 | 1 | 1 | 70.43 | 17.39 | 40.73 | 10.06 | 31.74 * | 7.84 | 2000 | 2000 | 132 | 115 | 4 |
| 290 | 2 | 1 | 219.59 | 6.10 | 87.23 | 2.42 | 52.76 * | 1.47 | 2810 | 6000 | 278 | 115 | 4 |
| 290 | 3 | 1 | 416.16 | 11.56 | 159.18 | 4.42 | 77.71 * | 2.16 | 5500 | 6000 | 142 | 115 | 3 |
| 290 | 4 | 1 | 529.47 | 8.40 | 198.37 | 3.15 | 101.00 * | 1.60 | 7100 | 6000 | 193 | 115 | 1 |
| 456 | 1 | 2 | 96.65 | 3.41 | 51.00 * | 1.80 | 34.16 | 1.91 | 3085 | 2000 | 907 | 90 | * |
| 456 | 2 | 2 | 594.78 | 1.14 | 182.25 * | .35 | 241.75 | .46 | 8710 | 6000 | 650 | 95 | * |
| 456 | 3 | 2 | 1455.23 | 2.15 | 504.01 | .74 | 419.86 * | .62 | 23139 | 6000 | 318 | 250 | * |
| 456 | 4 | 1 | 83.43 | 2.28 | 44.50 * | 1.22 | 56.43 | 1.54 | 2670 | 2000 | 1351 | 115 | * |
| 456 | 5 | 5 | 268.98 | 7.17 | 119.75 | 3.19 | 83.99 * | 2.24 | 6930 | 3000 | 235 | 150 | * |
| 501 | 1 | 1 | 165.34 | 52.49 | 70.12 | 22.26 | 34.36 * | 10.91 | 2000 | 6000 | 23 | 110 | * |
| 512 | 1 | 1 | 419.66 | 1.33 | 137.97 * | .44 | 161.44 | .31 | 6100 | 6240 | 598 | 175 | 4 |
| 512 | 2 | 1 | 561.24 | 1.78 | 188.99 | .60 | 178.15 * | .57 | 7900 | 6240 | 461 | 150 | 3 |
| 512 | 3 | 4 | 194.62 | .62 | 54.97 * | .17 | 134.26 | .43 | 3000 | 6240 | 1215 | 175 | 4 |
| 512 | 7 | 1 | 124.80 | .40 | 28.93 * | .09 | 127.19 | .40 | 2060 | 6240 | 1823 | 150 | * |
| 784 | 1 | 7 | 604.56 | 3.50 | 231.22 | 1.34 | 163.05 * | .94 | 11000 | 5000 | 240 | 250 | 2 |
| 784 | 2 | 7 | 865.92 | 3.88 | 334.37 | 1.50 | 226.72 * | 1.02 | 16500 | 5000 | 207 | 300 | 1 |
| 784 | 3 | 1 | 326.43 | 5.49 | 131.89 | 2.22 | 83.20 * | 1.40 | 5700 | 5000 | 160 | 250 | 4 |
| 784 | 4 | 1 | 427.59 | 5.13 | 171.87 | 2.06 | 109.73 * | 1.32 | 7900 | 5000 | 162 | 300 | 2 |
| 784 | 5 | 1 | 523.25 | 6.28 | 207.79 | 2.52 | 125.84 * | 1.51 | 9700 | 5000 | 132 | 300 | 1 |
| 784 | 6 | 1 | 479.25 | 5.08 | 191.45 | 2.03 | 121.85 * | 1.29 | 8900 | 5000 | 162 | 300 | 1 |

## TABLE 63 (Continued)

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ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

|  |  |  | INCINERATION |  |  |  | CARBON ADSORPTION |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | NO HEAT RECOVERY |  | 70% HEAT RECOVERY |  | (INCLUDES DISPOSAL) |  |  |  |  |  |  |
| PLANT CODE | MACHINE NO & TYPE |  | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 909 | 1 | 1 | 184.57 | 2.80 | 76.99 | 1.17 | 66.74 * | 1.01 | 3586 | 4000 | 461 | 140 | 4 |
| 909 | 2 | 1 | 200.28 | 19.73 | 87.73 | 8.64 | 50.00 * | 4.93 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 3 | 1 | 200.28 | 19.73 | 87.73 | 8.64 | 50.00 * | 4.93 | 3755 | 4000 | 80 | 140 | 4 |
| 909 | 4 | 1 | 125.76 | 12.37 | 58.28 | 5.74 | 37.12 * | 3.66 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 5 | 1 | 125.76 | 12.39 | 58.28 | 5.74 | 37.12 * | 3.66 | 2222 | 4000 | 135 | 140 | 4 |
| 909 | 6 | 5 | 340.13 | 10.37 | 145.42 | 4.43 | 89.31 * | 2.72 | 7801 | 3327 | 123 | 110 | 4 |
| 909 | 7 | 4 | 155.28 | 3.80 | 64.41 | 1.57 | 47.72 * | 1.17 | 2218 | 5200 | 335 | 110 | 4 |
| 909 | 8 | 7 | 724.28 | 8.68 | 275.73 | 3.30 | 144.27 * | 1.73 | 11641 | 5040 | 138 | 120 | 2 |
| 964 | 1 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 52.94 * | 11.09 | 4032 | 5400 | 17 | 100 | 3 |
| 964 | 2 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 52.94 * | 11.09 | 4032 | 5400 | 17 | 100 | 4 |
| 964 | 3 | 1 | 287.46 | 60.22 | 116.03 | 24.31 | 52.94 * | 11.09 | 4032 | 5400 | 17 | 100 | 2 |
| 964 | 4 | 7 | 494.41 | 53.48 | 195.98 | 21.20 | 88.51 * | 9.57 | 8000 | 4800 | 17 | 100 | 2 |
| 964 | 5 | 5 | 250.90 | 19.70 | 101.80 | 8.00 | 50.37 * | 3.96 | 3500 | 5400 | 49 | 100 | 3 |
| 1099 | 1 | 2 | 121.30 | 4.37 | 78.93 * | 2.84 | 85.28 | 3.07 | 8000 | 900 | 359 | 80 | 3 |
| 1099 | 2 | 6 | 41.13 | .73 | 34.19 * | .61 | 75.39 | 1.34 | 3500 | 500 | 2092 | 70 | 3 |
| 1099 | 3 | 1 | 118.08 | 9.84 | 71.18 | 5.93 | 63.09 * | 5.26 | 6000 | 1200 | 136 | 90 | 4 |
| 1099 | 4 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 5 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 6 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24560 | 7448 | 5 | 100 | 3 |
| 1099 | 7 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 3 |
| 1099 | 8 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 9 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 10 | 2 | 2250.92 | 213.20 | 807.35 | 76.47 | 266.21 * | 25.22 | 24500 | 7448 | 5 | 100 | 4 |
| 1099 | 11 | 2 | 877.41 | 20.67 | 317.76 | 7.48 | 123.00 * | 2.90 | 9500 | 7488 | 56 | 110 | 3 |
| 1099 | 12 | 3 | 1971.04 | 1.47 | 681.90 * | .51 | 782.71 | .58 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 13 | 3 | 1971.04 | 1.47 | 681.90 * | .51 | 782.71 | .58 | 44000 | 4000 | 620 | 145 | 3 |
| 1099 | 14 | 3 | 671.35 | 2.05 | 231.57 | .71 | 202.70 * | .62 | 10000 | 6000 | 474 | 180 | 4 |
| 1099 | 15 | 3 | 3166.83 | 39.93 | 1178.50 | 14.86 | 463.66 * | 5.85 | 45000 | 6000 | 27 | 170 | 3 |
| 1099 | 16 | 3 | 1910.87 | 2.89 | 652.87 | .99 | 458.09 * | .69 | 27000 | 6000 | 380 | 110 | 2 |
| 1099 | 17 | 3 | 3294.85 | 236.83 | 1217.64 | 87.52 | 443.17 * | 32.00 | 45000 | 6000 | 4 | 120 | 2 |
| 1099 | 18 | 3 | 84.05 | 23.95 | 57.35 | 16.34 | 51.76 * | 14.75 | 5000 | 900 | 63 | 100 | 4 |
| 1110 | 1 | 2 | 109.66 | 1.37 | 46.32 * | .58 | 57.99 | .72 | 2100 | 4000 | 665 | 150 | 2 |
| 1110 | 2 | 1 | 210.34 | 5.17 | 103.59 | 2.55 | 85.56 * | 2.10 | 7500 | 2080 | 186 | 150 | 1 |
| 1110 | 3 | 1 | 444.04 | 3.90 | 163.98 | 1.44 | 105.30 * | .92 | 6182 | 6000 | 226 | 150 | 2 |
| 45 | 2 | 5 | 1580.49 | 4.41 | 548.74 | 1.53 | 304.96 * | .85 | 19000 | 7230 | 233 | 160 | 3 |
| 45 | 3 | 1 | 415.95 | 4.27 | 158.11 | 1.62 | 104.62 * | 1.07 | 6500 | 5290 | 376 | 150 | 4 |
| 249 | 1 | 4 | 64.58 * | 31.44 | 72.13 | 35.12 | 84.67 | 41.22 | 10660 | 190 | 80 | 125 | 4 |
| 249 | 2 | 4 | 66.49 | 4.96 | 42.79 | 3.19 | 42.19 * | 3.14 | 3000 | 1200 | 267 | 125 | 4 |
| 249 | 3 | 4 | 76.61 | 4.67 | 45.65 | 2.78 | 43.36 * | 2.64 | 3000 | 1500 | 267 | 125 | 4 |
| 249 | 4 | 4 | 185.45 | 3.75 | 93.71 | 1.79 | 77.56 * | 1.57 | 6000 | 2272 | 269 | 130 | 3 |
| 249 | 5 | 4 | 277.54 | 1.26 | 118.32 * | .54 | 164.43 | .75 | 16060 | 2272 | 713 | 140 | 4 |
| 249 | 6 | 4 | 442.66 | 3.85 | 175.88 | 1.53 | 127.04 * | 1.10 | 9263 | 3850 | 233 | 125 | 3 |
| 249 | 7 | 4 | 209.60 | 4.20 | 101.47 | 2.04 | 87.42 * | 1.75 | 7300 | 2100 | 246 | 120 | 4 |

TABLE 63 (Continued)

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO & TYPE | | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 628 | 1 | 1 | 184.15 | 14.76 | 87.43 | 7.01 | 58.16 * | 4.66 | 5000 | 2600 | 78 | 100 | 1 |
| 628 | 2 | 1 | 254.89 | 13.83 | 104.58 | 5.67 | 55.69 * | 3.02 | 4000 | 4800 | 78 | 100 | 3 |
| 628 | 3 | 1 | 106.78 | 13.90 | 49.55 | 6.45 | 30.35 * | 3.95 | 1500 | 4800 | 87 | 110 | 3 |
| 799 | 2 | 1 | 881.67 | 6.23 | 343.09 | 2.42 | 204.63 * | 1.45 | 17000 | 4380 | 169 | 170 | 3 |
| 799 | 3 | 1 | 886.85 | 8.61 | 348.26 | 3.38 | 193.27 * | 1.88 | 17000 | 4300 | 123 | 170 | 2 |
| 799 | 4 | 2 | 150.99 | 4.86 | 84.01 | 2.70 | 78.21 * | 2.52 | 7000 | 1500 | 241 | 160 | 4 |
| 799 | 5 | 3 | 37.97 | 1.92 | 28.32 * | 1.43 | 38.73 | 1.96 | 1770 | 860 | 901 | 160 | 4 |
| 799 | 6 | 2 | 826.87 | 9.34 | 334.51 | 3.78 | 193.74 * | 2.19 | 17960 | 3800 | 132 | 160 | 4 |
| 799 | 9 | 4 | 107.56 | 4.92 | 61.70 | 2.82 | 57.31 * | 2.62 | 4670 | 1500 | 219 | 150 | 4 |
| 835 | 1 | 1 | 57.99 | 13.12 | 33.55 | 7.59 | 25.72 * | 5.82 | 1200 | 2600 | 108 | 120 | 3 |
| 953 | 1 | 1 | 210.82 | 1.60 | 75.40 * | .57 | 80.62 | .61 | 2800 | 6000 | 697 | 83 | 4 |
| 953 | 2 | 1 | 558.81 | 2.70 | 195.58 | .94 | 145.88 * | .70 | 7600 | 6000 | 394 | 85 | 1 |
| 953 | 3 | 1 | 170.97 | 1.98 | 64.89 | .75 | 62.58 * | .73 | 2200 | 6000 | 675 | 92 | 3 |
| 953 | 4 | 1 | 252.74 | 1.76 | 89.71 | .62 | 89.42 * | .62 | 3400 | 6000 | 620 | 90 | 1 |
| 953 | 5 | 1 | 452.17 | 2.88 | 161.15 | 1.02 | 117.46 * | .75 | 6100 | 6000 | 359 | 89 | 1 |
| 953 | 6 | 6 | 421.24 | 3.98 | 154.34 | 1.46 | 98.48 * | .93 | 5600 | 6000 | 293 | 91 | 3 |
| 953 | 7 | 6 | 439.58 | 4.09 | 161.28 | 1.50 | 101.64 * | .95 | 5900 | 6000 | 278 | 103 | 3 |
| 953 | 8 | 1 | 340.88 | 2.24 | 121.07 | .79 | 102.72 * | .67 | 4600 | 6000 | 492 | 90 | 3 |
| 953 | 9 | 1 | 301.65 | 1.95 | 106.78 | .69 | 98.75 * | .64 | 4100 | 6000 | 553 | 98 | 3 |
| 953 | 10 | 1 | 311.01 | 2.10 | 110.61 | .75 | 98.07 * | .66 | 4200 | 6000 | 539 | 93 | 2 |
| 953 | 11 | 1 | 436.46 | 2.88 | 156.07 | 1.03 | 114.00 * | .75 | 5900 | 6000 | 357 | 94 | 1 |
| 953 | 12 | 6 | 1648.72 | 7.63 | 593.15 | 2.74 | 287.67 * | 1.33 | 22400 | 6000 | 138 | 97 | 1 |
| 953 | 13 | 6 | 1567.25 | 7.25 | 563.40 | 2.61 | 277.27 * | 1.28 | 21300 | 6000 | 145 | 97 | 1 |
| 953 | 14 | 1 | 692.58 | 96.19 | 261.08 | 36.26 | 101.85 * | 14.15 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 15 | 1 | 692.58 | 96.19 | 261.08 | 36.26 | 101.85 * | 14.15 | 9000 | 6000 | 12 | 80 | 1 |
| 953 | 16 | 1 | 355.57 | 65.85 | 138.72 | 25.69 | 58.68 * | 10.87 | 4500 | 6000 | 17 | 80 | 1 |
| 953 | 17 | 1 | 355.57 | 65.85 | 138.72 | 25.69 | 58.68 * | 10.87 | 4500 | 6000 | 17 | 80 | 1 |
| 13 | 1 | 1 | 453.07 | 21.25 | 174.11 | 8.17 | 77.57 * | 3.64 | 6000 | 6000 | 57 | 120 | 3 |
| 13 | 2 | 1 | 233.02 | 6.97 | 92.44 | 2.77 | 53.03 * | 1.59 | 3000 | 6000 | 178 | 120 | 3 |
| 13 | 3 | 1 | 383.40 | 21.61 | 148.59 | 8.37 | 67.12 * | 3.78 | 5000 | 6000 | 59 | 110 | 2 |
| 13 | 4 | 1 | 237.05 | 8.72 | 94.11 | 3.46 | 51.20 * | 1.88 | 3000 | 6000 | 151 | 100 | 3 |
| 13 | 5 | 1 | 661.00 | 10.30 | 247.21 | 3.85 | 118.45 * | 1.85 | 9000 | 6000 | 119 | 130 | 1 |
| 13 | 6 | 2 | 816.67 | 32.40 | 307.10 | 12.21 | 126.04 * | 5.01 | 11000 | 6000 | 38 | 120 | 2 |
| 184 | 1 | 1 | 231.47 | 4.26 | 96.15 | 1.77 | 69.29 * | 1.27 | 4470 | 4000 | 233 | 125 | 4 |
| 184 | 2 | 1 | 107.16 | .56 | 36.13 * | .19 | 95.55 | .50 | 2312 | 4600 | 1577 | 125 | 4 |
| 184 | 3 | 1 | 107.16 | .56 | 36.13 * | .19 | 95.55 | .50 | 2312 | 4000 | 1577 | 125 | 4 |
| 184 | 4 | 1 | 167.27 | .88 | 60.23 * | .32 | 104.22 | .55 | 3600 | 4000 | 1013 | 150 | 1 |
| 334 | 6 | 1 | 306.67 | 3.15 | 130.00 | 1.35 | 111.54 * | 1.14 | 8000 | 3000 | 407 | 120 | 3 |

TABLE 63 (Continued)

9

ANNUAL COST (IN THOUSANDS) AND ANNUAL COST PER POUND OF VOC FOR VARIOUS EMISSION CONTROL TECHNIQUES

| | | | INCINERATION | | | | CARBON ADSORPTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NO HEAT RECOVERY | | 70% HEAT RECOVERY | | (INCLUDES DISPOSAL) | | | | | | |
| PLANT CODE | MACHINE NO | & TYPE | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | ANNUAL COST | ANNUAL $/ LB VOC | TOTAL SCFM | HR/ YR | AVG PPM | MIN TEMP | AGE GROUP |
| 431 | 1 | 7 | 91.32 | 31.95 | 57.85 | 20.24 | 40.57 * | 17.06 | 4505 | 1242 | 51 | 195 | 4 |
| 431 | 2 | 7 | 89.20 | 21.09 | 57.07 | 13.40 | 49.21 * | 11.62 | 4505 | 1200 | 81 | 190 | 4 |
| 431 | 3 | 3 | 253.28 | 12.07 | 121.15 | 5.77 | 84.49 * | 4.03 | 8000 | 2442 | 110 | 185 | 4 |
| 431 | 4 | 3 | 131.48 | 15.42 | 92.68 | 10.87 | 89.74 * | 10.52 | 10070 | 782 | 88 | 158 | 4 |
| 431 | 5 | 2 | 374.08 | 11.35 | 173.40 | 5.26 | 119.40 * | 3.62 | 12000 | 2350 | 119 | 120 | 4 |
| 431 | 6 | 4 | 43.04 | 10.54 | 33.36 | 8.17 | 32.84 * | 8.05 | 2250 | 772 | 100 | 200 | 3 |
| 431 | 7 | 5 | 105.82 | 2.65 | 46.65 | 1.17 | 41.16 * | 1.03 | 1595 | 4680 | 357 | 110 | 4 |
| 467 | 1 | 1 | 426.85 | 3.05 | 148.47 | 1.06 | 100.37 * | .72 | 4430 | 8000 | 367 | 120 | 1 |
| 467 | 2 | 1 | 426.85 | 3.05 | 148.47 | 1.06 | 100.37 * | .72 | 4430 | 8000 | 367 | 120 | 1 |
| 832 | 1 | 2 | 2633.53 | 5.34 | 1013.82 | 2.06 | 654.07 * | 1.33 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 2 | 2 | 2633.53 | 5.34 | 1013.82 | 2.06 | 654.07 * | 1.33 | 56300 | 3824 | 347 | 110 | 2 |
| 832 | 3 | 2 | 1413.89 | 11.16 | 669.72 | 5.29 | 512.13 * | 4.04 | 56300 | 1920 | 347 | 110 | 3 |
| 832 | 4 | 2 | 1413.89 | 11.16 | 669.72 | 5.29 | 512.13 * | 4.04 | 56300 | 1920 | 347 | 110 | 4 |
| 1056 | 4 | 2 | 1057.70 | 2.70 | 356.50 | .91 | 252.44 * | .64 | 13000 | 7000 | 351 | 130 | 4 |
| 1056 | 5 | 2 | 1564.11 | 2.79 | 524.25 | .94 | 361.01 * | .64 | 19300 | 7000 | 337 | 130 | 2 |
| 1056 | 6 | 2 | 576.54 | 2.57 | 197.92 | .88 | 146.88 * | .66 | 7000 | 7000 | 372 | 130 | 4 |
| 1056 | 7 | 5 | 3015.35 | 15.38 | 1077.92 | 5.50 | 426.48 * | 2.18 | 36000 | 7000 | 63 | 130 | 3 |
| 1056 | 8 | 5 | 3599.48 | 16.07 | 1285.85 | 5.74 | 503.78 * | 2.25 | 43000 | 7000 | 61 | 130 | 3 |
| **SUMMARY** | | | | | | | | | | | | | |
| Total Dollars | | | 191.76[a] | 4,745.00 | 71.53 | 2,053.00 | 54.66 | 1,216.00 | | | | | |
| Average Dollars | | | 560,701 | 13.88 | 209,139.00 | 6.00 | 159,816 | 3.56 | | | | | |
| Total Asterisks (& Percent) | | | 2(0.6) | | 98(28.7) | | 242(70.8) | | | | | | |

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[a] Total annual costs reported in millions.

APPENDIX B

SURVEY QUESTIONNAIRE

**National Flexible Packaging Association**

Richard A. Lillquist
President

12025 Shaker Blvd., Cleveland, Ohio 44120
216-229-6373

May 17, 1978

To: Every Company in the Flexible
Materials Converting Industry

Reproduced from
best available copy.

Gentlemen:

As you may know, the Environmental Protection Agency has recently issued a Guideline on Paper Coating and a proposed Graphic Arts Guideline. These guidelines propose regulations which would seriously restrict the quantity of solvents evaporating into the air during manufacturing operations.

But some people at EPA understand that our industry has a problem--because the NFPA Task Force on Organic Solvent Emissions surveyed our membership last year in anticipation of these regulations and found no immediate solution. We went to EPA for help. The EPA Industrial Environmental Research Laboratory agreed to cooperate with us in creating a comprehensive questionnaire to document the problem. The questionnaire is attached.

Although the EPA retained WAPORA, Inc., an environmental consulting firm, to assist in developing this questionnaire, it is in reality an operation of ours--not of government. It is our responsibility to provide the EPA with as many completed questionnaires as possible, thereby justifying EPA's confidence in our industry and the expenditure it has made on our behalf.

This is why we urge you to carefully consider the questionnaire and answer every question in as much detail as possible. Under Roman Numeral III please fill out a separate photo copy of this sheet for each piece of equipment in your plant. We would have sent you additional forms, but we did not know how many you would need.

Please note that the questionnaire has three parts. The material in the third part is only to help you fill out the first two parts and need not be returned to us.

NFPA is processing all questionnaires. Please return the first two parts to us in Cleveland, directed to my personal attention.

We intend to remove the first sheet--and all company identification--and assign a code number. That number is only for use if we need to clarify a particular response. No one other than NFPA will know the identity of any company filling out its questionnaire.

Anonymous questionnaires will be forwarded to WAPORA, which will computerize them for compilation and correlation.

We will take every precaution to group questionnaires in protecting companies from disclosure of proprietary information.

Analysis of your questionnaire data will determine the extent of the industry's current capacity for controlling emissions, areas requiring research, and feasibility demonstrations.

This is an extremely vital questionnaire--because your answers will determine an important part of your future. We ask you to provide those answers -- in depth -- as quickly as possible for your own sake.

Sincerely,

Richard A. Lillquist
President

RAL/ev

Encs.

Code Number ______________
(To be supplied by NFPA)

PLANT IDENTIFICATION (This page will not be released by NFPA)

A. Parent Company ____________________________

Mailing Address ____________________________

____________________________

____________________________

Plant or Facility ____________________________

Mailing Address ____________________________

____________________________

____________________________

B. Person to contact regarding information supplied in this survey

Name ____________________________

Title ____________________________

Mailing Address ____________________________

____________________________

____________________________

Telephone ____________________________

C. Date Survey Form Completed ____________________

Code Number ____________

(To be supplied by NFPA)

## I. SOLVENT USAGE

A. Total solvents used ________________ pounds/year (See Note 1)

NOTE 1. This will identify the total volume of solvent emitted by our industry. Include in the calculations the total pounds of solvent received in purchased ink (assume 50% solvent if not known) and the solvent received in purchased coatings and adhesives (assume 75% if not known). If the exact data is not known from records, please give estimate. Indicate this is an estimate by putting an asterisk (*) by the figures.

B. Solvent Use (See Note 2)

|  |  |  |  |
|---|---|---|---|
| 1. Inks | __________% or | __________ | pounds/year |
| 2. Coatings | __________% or | __________ | pounds/year |
| 3. Varnish | __________% or | __________ | pounds/year |
| 4. Adhesives | __________% or | __________ | pounds/year |
| 5. ____________ | __________% or | __________ | pounds/year |
| 6. ____________ | __________% or | __________ | pounds/year |
|  | (Should add to 100%) | (Should be same as "A" above) |  |

NOTE 2. This will enable us to estimate solvent emission from the various types of equipment. Use the same assumptions as to solvent content as in Note 1 (assume 50% solvent) if exact composition is not known. Please give best estimate if exact data is not available from records. Indicate this is an estimate by putting an asterisk (*) by the figures.

C. Solvent Composition (See Note 3)

|  | Alcohols | Esters | Ketones | Hydrocarbons | Other |
|---|---|---|---|---|---|
| 1. Presses - Flexo | ______ | ____ | ______ | ________ | ____ |
| 2. Presses - Gravure | ______ | ____ | ______ | ________ | ____ |
| 3. Coaters | ______ | ____ | ______ | ________ | ____ |
| 4. Laminators | ______ | ____ | ______ | ________ | ____ |
| 5. Priming Stations | ______ | ____ | ______ | ________ | ____ |
| 6. Combined (_____) | ______ | ____ | ______ | ________ | ____ |

NOTE 3. This will allow estimates of the types of solvent emission. Please give estimate where data cannot be calculated from records. It may be desirable to calculate the distribution of larger machines and estimate for smaller machines. The categories are shown below:

|  |  |
|---|---|
| Alcohols: | Ethanol, including denatured alcohol, isopropanol, n-propanol, etc. |
| Esters: | Ethyl acetate, propyl acetate, etc. |
| Ketones: | Acetone, MEK, MIBK, etc. |
| Hydrocarbons: | Toluene, naphtha, xylenes, heptane, |
| Other: | Nitropropanes, cellosolves, proprietary solvent blends, etc. |

## II. EMISSION CONTROL EQUIPMENT (Currently in use) (See Note 4)

1. Afterburners: ☐ Thermal ☐ Catalytic ☐ Heat Recovery
   Capacity _________ SCFM Temperature _________ °F.
2. Carbon Adsorption: Capacity ____________ SCFM
3. Other - Specify ________________________________________
   ________________________________________
4. Comments on Emission Control ________________________________________
   ________________________________________
   ________________________________________

NOTE 4. Please note the type of emission control systems which are in use in your plant, and give any data and comments which you are able to.

## III. EQUIPMENT SURVEY (Complete a separate sheet for each machine) (See Note 5)

Type (Press, Coater, Laminator, etc.) ______________________________

Material Used (Type of ink, coating, adhesive, etc.) ______________________________

NOTE 5. Please do not indicate a brand name for the type of machine you are using. Supply data which indicates whether a press is flexographic or gravure; part of an in-line system; type of coater, etc. Material used should indicate solvent based ink or water based ink; same applies to coating, adhesive, etc.

Age of Equipment (Approximate)

New to 4 years __________
5 to 9 years __________
10 to 14 years __________
15 years & older __________

### A. Operating History (Typical Year) (See Note 6)

Scheduled Production ____________ Hrs./year Scheduled Down ____________ Hrs./year

Running ________%
Down (Idle) ________%
100 %

NOTE 6. Total available production time is 8760 hours per year (365 days x 24 hours) Scheduled production is number of hours scheduled per day multiplied by number of scheduled working days per year. For example, 16 hours/day time 300 days/year equals 4800 hours/year scheduled production time and scheduled down time would be 3960 hours/year (8760 - 4800). Down (idle) time is the portion of the scheduled production time when the equipment is not running and includes cylinder and ink changes, breakdowns, etc. The running time plus the idle time equals the scheduled production time.

### B. Exhaust (Complete both 1 and 2) (See Note 7)

| | | Stack 1 | Stack 2 | Stack 3 | Stack 4 |
|---|---|---|---|---|---|
| 1. | Volume, SCFM | ______ | ______ | ______ | ______ |
| | Temperature, °F | ______ | ______ | ______ | ______ |
| | Solvent Conc. ppm or | ______ | ______ | ______ | ______ |
| | lb/hour | ______ | ______ | ______ | ______ |

2. Line Speed ____________ feet/min. Web width, typical ____________ inches

Solvent content of material applied ____________ weight percent

Quantity Applied ____________ pounds/ream or ____________ pounds/hour

Number of Stacks ____________

NOTE 7. Please complete as much information as possible in both sections. If you do not have exact figures, please estimate them as closely as possible. Indicate this is an estimate by putting an asterisk (*) next to the figures. Under Section 2 of Part B, Quantity **Applied**, please report as dry weight of the material being applied to the substrate as pounds per ream or pounds per hour.